Amended Rangeland Health Assessments
For
Lone Tree (0587) and Louisa Creek (0601) Allotments

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Rangeland Health Standards and Guidelines Assessment
for
Lone Tree (0587) and Louisa (0601) Allotments

Standards for Rangeland Health and Guidelines for Livestock Grazing Management

2013 Supplement to the Lone Tree and Louisa Creek Rangeland Health Standards and Guidelines Assessment
The Rangeland Health Standards and Guidelines Assessment for the Lone Tree and Louisa Creek allotments was completed in 2006 as a portion of the grazing permit renewal process. Until 2013, no rangeland health determinations were completed and the permits authorizing grazing use in these allotments have not been fully processed for renewal. The current document consists of the 2006 RHA, in full, supplemented by new information available since the 2006 document was completed. Portions of this 2013 document that supplement the 2006 document are presented in this two-field table format with the header above, while those portions carried forward unchanged from the 2006 document are outside the two-field tables. The 2013 supplement to the assessment includes data compiled between 2006 and 2013, as well as the completion of the 2013 evaluation report and determination consistent with the Livestock Grazing Permit Renewal Desk Guide for Idaho Bureau of Land Management, May 2009. The 2013 determinations for the Lone Tree and Louisa Creek allotments can be found at the end of this document.

I. Background

In 1997, the Bureau of Land Management (BLM) in Idaho adopted rangeland health standards (Appendix A), which were developed in coordination with the Resource Advisory Councils. There are eight standards, not all of which apply to any one parcel of land. Standards of rangeland health are expressions of the level of physical and biological condition or degree of function required for healthy, sustainable rangelands. Rangelands should be meeting or making significant progress toward meeting the standards. If the standards are met, there should be proper nutrient and hydrologic cycling, and energy flow.

Indicators are typical physical and biological factors and processes that can be measured or observed. The following Assessment examines the indicators for each standard using quantitative, and/or qualitative information including inventory data, monitoring data, health assessment information, or other observations to evaluate the current status of resource conditions for each standard. Observations of the indicators for each standard and trends in measured indicators are discussed below for all of the standards that are applicable to this allotment.

Conclusions as to whether or not these allotments are meeting or making significant progress toward meeting the standards will be provided in a separate evaluation and determination document for each allotment based on information in this document.

Idaho Rangeland Health Standards Assessment

Resource conditions were evaluated according to how they relate to the Standards for Rangeland Health, as adopted by Idaho BLM in 1997. The following subsections discuss resource conditions as they relate to each standard.

A. Lone Tree Allotment (0587)

Physiography

The Lone Tree Allotment is located in Owyhee County approximately 35 miles south of Murphy, Idaho. The allotment landforms are characterized by mountains, foothills, and breaks. Elevations range from approximately 5,100 to 6,500 feet, while slopes often vary from 2 to 35 percent. The soils are generally loams with varying amounts of stone. The soils are shallow to moderately deep with a slight or moderate water erosion potential and moderate wind erosion potential. On deeper loamy soils; mountain big sagebrush, bluebunch wheatgrass, Idaho fescue are common with localized western juniper stands. On the shallower clay soils, low sagebrush and Idaho fescue are common.

Annual precipitation measurements taken at the Triangle weather station are representative of the allotment; however, it has only been in operation since 1991. The Grand View weather station is further away, but patterns of annual precipitation may be more representative. The precipitation data is presented graphically in Appendix F.

The Lone Tree Allotment is divided into six pastures, containing public, state, and private lands as depicted in table A-1.

Table A-1: Land Status Acreages by pasture*

Pasture	Public	State	Private	Total
1	3900	19	74	3,993
2	1007	0	18	1,025
3	780	2940	107	3,827
4	515	1638	2	2,155
5	341	2803	36	3,180
6	589	776	1	1,366
Total	**7,132**	**8,176**	**238**	**15,546**

***Acreages are based on best available estimates**

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Table ALLOT-1: Lone Tree allotment land status acreages by pasture*

Pasture	Public	State	Private	Total
1	4,907	19	91	5,017
2	Combined with pasture 1 as noted in 2006 text			
3	779	2,940	107	3,826
4	515	1,638	2	2,155
5	341	2,803	35	3,179
6	589	776	1	1,366

Total	7,131	8,177	235	15,542

*Acreages are based on 2013 GIS data

Livestock Grazing Management

The Owyhee Resource Management Plan (1999) Table LVST-1 identified the Lone Tree Allotment as an 'Improve' allotment, of medium priority. Allotments in the selective management category of 'Improve' are managed with adequate expenditures of funding and manpower to improve current unsatisfactory resource conditions.

Livestock use is allocated at 1,523 animal unit months (AUMs) by cattle. Livestock grazing is authorized through a term grazing permit, currently issued to Josephine Ranch. The permit authorizes livestock use on the Lone Tree Allotment as presented in Table A-2.

Table A-2: Permitted Livestock Use

Operator Name & No.	Livestock Kind & No.	Season of Use	Public Land	AUMs		
				Active	Suspended	Permitted
Josephine Ranch (1101471)	489 Cattle	5/16-10/30	56 %	1,523	515	2,038

The Lone Tree Allotment Management Plan was approved in 1984. It prescribed a 6-pasture grazing system, with use in 4 pastures being deferred until mid or late July each year allowing for seed ripe of perennial grasses, and 2 pastures grazed prior to seed ripe, which are rotated from year to year. Pastures 1, 2, 3, and 4 receive early use 1 in 4 years; while Pastures 5 and 6 get early use 2 in 4 years.

Prior to 1995 the schedule was adjusted to provide for early use every year in Pastures 1 and 2, with the intent to reduce grazing impacts to riparian areas along Rock Creek, Long Valley Creek, and Josephine Creek. Josephine Creek forms the boundary between Pastures 1 and 2, and is not fenced. Actual Use Records provide actual and period of use by pasture from 1990 to 2006 (Tables A-3, A-4).

Table A-3 Actual Use AUMs

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Use	530	739	230	626	636	786	751	*	559	527	748	811

* No Actual Use Reports were submitted for grazing years 1990-1994, and 2001.

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Table LVST-1: Actual use AUMs, 2006 through 2012

Year	2006	2007	2008	2009	2010	2011	2012
AUMs	756	810	683	564	792	942	220

Table A-4 Periods of Use from Actual Use Reports

Pasture	1997	1998	1999	2000	2001	2002	2003	2004	2005

Pasture	1997	1998	1999	2000	2001	2002	2003	2004	2005
1, 2	5/16 6/13	5/19 7/12	5/17 7/3	5/16 6/24	*	5/16 6/26	5/29 6/30	5/16 7/1	5/16 7/1
3	6/10 7/24	7/4 -7/27 9/30- 10/10	9/18 10/4	Rest	*	6/26 7/20	6/30 7/30	Rest	7/1 8/1
4	7/24 8/7	7/25 8/3	6/26 7/18	9/22 10/15	*	7/20 8/10	9/25 10/18	7/10 8/10	8/1 8/21
5	8/7 10/15	Rest	7/15 9/4	7/21 9/22	*	8/10 9/30	7/30 9/25	8/10 10/10	8/21 10/15
6	Rest	8/1 8/19	9/4 9/18	7/8 7/21	*	Rest	Rest	10/10 10/20	10/15 11/1

* No Record for this year

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Table LVST-2: Periods of use from actual use reports, 2006 through 2012

Pasture	2006	2007	2008	2009	2010	2011	2012
1, 2	5/16 to 6/30	5/16 to 6/14	5/16 to 7/14	5/16 to 6/15	5/16 to 6/14	5/16 to 6/18	5/15 to 7/6
3	7/1 to 7/30	6/15 to 7/14	7/15 to 8/31	7/15 to 8/15	6/15 to 7/14	6/28 to 8/9	
4	8/1 to 8/20	9/15 to 10/20					
5	8/21 to 9/31	7/15 to 9/14	8/31 to 10/15	8/15 to 9/30	7/15 to 9/14	8/10 to 9/10	
6	10/1 to 10/16	9/15 to 10/20	10/15 to 10/31	9/30 top 10/20	9/15 to 10/9	9/10 to 10/20	

These data indicate that pastures 1 and 2 have consistently been grazed early in the grazing schedule, in compliance with the terms and conditions of the 1997 grazing permit. Early-season use of this combined pasture has extended through the active growing season for upland perennial plants with removal of cattle from pastures 1 and 2 between mid-June and mid-July.

Based on actual use data submitted, the grazing schedules for pastures 3, 4, 5, and 6 has annually progressed from the northern pastures (lower numbered) to the southern pastures (higher numbered). As a result, pasture 3 is periodically used late during the active growing season for upland plants (May-June), while use of pastures 5 and 6 is annually deferred until after the active growing season. Limited recent actual use data are available for pasture 4.

Rangeland Health Standards Assessment

1. Standard: Watersheds

Ten rangeland health worksheets were completed on the Lone Tree Allotment during 2001. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health - Version 3". Table A1-1

summarizes indicators by pasture, the allotment map shows rangeland health assessment locations and Appendix E provides individual indicator ratings by site.

Table A1-1: Indicators of Rangeland Health

Standard 1- Watersheds	Degree of Departure				
	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1*[1]	17	7	0	0	0
Pasture 2*[2]	14	8	2	0	0
Pasture 3*[3]	17	6	1	0	0
Pasture 4*[4]	18	5	1	0	0
Pasture 5*[5]	11	0	1	0	0
Pasture 6*[6]	11	1	0	0	0

*[1]- summarizes; 1 Loamy 12-16" and 1 Shallow Claypan 12-16" ecological sites

*[2]- summarizes; 2 Shallow Claypan 12-16" ecological sites

*[3]- summarizes; 1 Loamy 13-16" and 1 Shallow Claypan 12-16" ecological sites

*[4]- summarizes; 1 Loamy 13-16" and 1 Shallow Claypan 12-16" ecological sites

*[5]- summarizes; 1 Loamy 13-16" ecological site

*[6]- summarizes; Loamy 13-16" ecological site

Pasture 1

RH1A, (T07S R3W Sec26) represents a Loamy 13-16" ecological site with inclusions of Shallow Claypan 12-16" in the northern portion of the pasture. At this site, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

RH1B, (T7S R3W Sec35), represents a Shallow Claypan 12-16" ecological site in the central portion of the pasture. At this site, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

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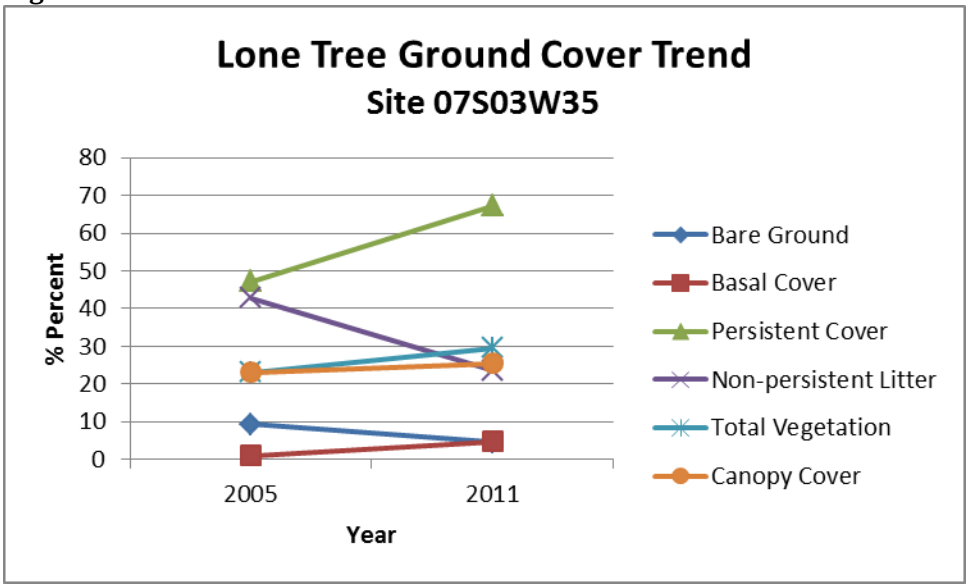
Ground Cover Trend

Ground cover trend data were collected at the nested plot frequency transect (07S03W35) in 2005 and 2011 (Figure Soil-1). Bare ground showed a non-significant decrease, which may coincide with a significant (students T-test; p-value <0.1) increase in rock, gravel, biological crust, and persistent litter (after this, referred to as persistent cover). Total vegetation, canopy cover, and basal vegetation increased, although only the latter was significant, while non-persistent litter significantly decreased.

Figure Soil-1: Ground Cover data from trend site 07S03W35 for the Lone Tree allotment (2005, 2011)



This site displays a slight upward trend between 2005 and 2011 for most ground cover values, with the exception of non-persistent litter. No obvious connection to the significant decline can be found among other ground cover values or can be tied to grass frequency (see Standard 4), which has remained static. Bare ground has decreased minimally and remains below the expected range of values (40 to 50 percent) for this Shallow Claypan 12-16" ecological site. Qualitative observations from rangeland health assessments also support trend data by showing that soil and hydrologic indicators are within expected reference conditions.

Grass frequency trend displays the presence of both deep- and shallow-rooted perennial bunchgrasses, although qualitative observations noted a reduced presence of mid-statured bunchgrasses. Shrub density data (see Standard 4) are similar to canopy cover and have remained fairly static except for showing increased recruitment of low sagebrush seedlings. Overall interpretations of trend data suggest that ground cover has maintained and is slightly improving, but that the actual biotic integrity (see Standard 4) is unsatisfactory.

Pasture 2

RH2A (T7S R3W Sec28) represents a Shallow Claypan 12-16" ecological site in the western portion of the pasture. At this location, water flow paths rated in the moderate range of departure from expected conditions for this ecological site. Water flow patterns were described as longer than expected and sometimes connected. Other indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

RH2B (T7S R3W Sec28) represents a Shallow Claypan12-16" ecological site in the eastern portion of the pasture. The indicator for plant community composition and distribution relative to infiltration and runoff rated in the moderate range of departure for this ecological site. Field observations noted bunchgrasses were less common in the shrub interspaces than expected and

western juniper was scattered and common. Other indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

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Pasture 2 has been combined with pasture 1.

Pasture 3

RH3A (T7S R3W Sec32) represents a Shallow Claypan 12-16" ecological site in the northwestern portion of the pasture. At this location, water flow patterns rated in the moderate range of departure, they were described as longer than expected, interconnected, and stabilized by rock and gravel in places. Other indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

RH3B (T7S R3W Sec32) represents a Loamy 13-16" ecological site with inclusions of Shallow Claypan 12-16" in the northern portion of the pasture. At this site, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

Pasture 4

RH4A (T7S R4W Sec19) represents a Shallow Claypan 12-16" ecological site with inclusions of Loamy 13-16" ecological site in the northern portion of the pasture. All indicators relating to watershed health rated in the none-to-slight or slight-to-moderate ranges of departure from expected conditions of this ecological site.

RH4B (T7S R3W Sec31) represents a Loamy 13-16" ecological site, with inclusions of Shallow Claypan 12-16" ecological site in the northern portion of the pasture. At this location, the indicator for plant community composition and distribution rated in the moderate range of departure and was described as slightly altered by the increase of western juniper. Other indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

Pasture 5

RH5A (T8S R3W Sec35) represents a Loamy 13-16" ecological site with inclusions of Shallow Breaks ecological site in the southeastern portion of the pasture. At this location, the indicator for plant community composition and distribution relative to infiltration and runoff rated in the moderate range of departure due to the increase of western juniper, and fewer perennial bunchgrasses in areas dominated by western juniper. Other indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for

this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

Pasture 6

RH6A (T8S R3W Sec26) represents a Loamy 13-16" ecological site with inclusions of Very Shallow Stony Loam ecological site in the southern portion of the pasture. At this site, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site. These ranges are within the acceptable variation of conditions for this ecological site.

2. Standard: Riparian Areas and Wetlands

Named streams on the Lone Tree Allotment include: Rock, Josephine, Long Valley, Wickiup, and Rose creeks. Table RIPN-1, in the 1999 Owyhee Resource Management Plan (RMP); identified 0.98 miles of Rock Creek, 0.52 miles of Rose Creek, and 2.58 miles of Josephine Creek in unsatisfactory riparian condition. Long Valley Creek and Wickiup Creek were not mentioned. Inventories and assessments were conducted by the BLM in 2000 and 2001.

Rock Creek

Approximately 0.9 miles of Rock Creek cross public land in Pasture 1. Rock Creek was inventoried in 2001 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix B). The Proper Functioning Condition assessment rated the 0.9-mile segment as Functional-At Risk with no apparent trend. The stream segment is predominantly vegetated with a Yellow Willow Community Type (CT). Young willows were abundant in 2001.

Nine graminoids and seven forbs were present on the segment. Banks were inadequately vegetated to dissipate stream energy and resist erosion (Table A2-2). Canada thistle is a noxious weed in Idaho and was present on 15-25 percent of the assessment area.

Table A2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment – Rock Creek

Riparian/Wetland Indicators:	**ROC-006**
Stream miles	0.9
Date of data collection	10/2001
Diverse age class/structure of hydric vegetation (6)	Y/N
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y
Noxious weeds are present (24a)	1/

Riparian/Wetland Indicators:	**ROC-006**
Overall functioning condition	FAR+
Apparent trend	NA
Pasture number	1

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators); + - at upper end of condition category, - -at lower end of condition category.
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- 1/ Canada thistle exists on 15 to 25 percent of the area.

Riparian Utilization Monitoring

Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank protection, prevention of sedimentation, and maintenance of plant communities (USDI, BLM 1999). Pasture 1 is grazed early each year to reduce impacts to the riparian area. Table A2-3 has utilization data for Rock Creek.

Table A2-3: Riparian Zone Monitoring and Stubble Heights – Rock Creek

Location	Pasture	Year	Stubble Inches	Shrub use %
ROC-006	1	10/2002	4	40-60

Josephine Creek

Josephine Creek forms the boundary of Pastures 1 and 2 for approximately 2.6 miles. The creek was inventoried in 2000 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The segment of Josephine Creek below the confluence with Long Valley Creek (JOS-002) was found to be in high Functional-At Risk. The segment above the confluence with Long Valley Creek (JOS-003) was in low Proper Functioning Condition. This shows an improvement in condition from the July 1977 Stream Survey that rated Josephine Creek in poor condition with unstable banks, heavy use, and vegetation composed of sagebrush and upland grasses.

The lower segment (JOS-OO2) was predominately vegetated with a Whiplash Willow Community Type, however, point bars were not adequately re-vegetating with hydric species and a small population of Canada thistle, an Idaho noxious weed, was present (Table A2-4).
The upper segment (JOS-003), was dominated by Yellow Willow, Whiplash Willow, and Red-twig Dogwood Community Types. The Yellow Willow and Whiplash Willow Community Types are considered to be pioneer communities on sites dominated by Cottonwood trees (Hanson 1995). Eight different graminoids and nine different forbs were present on the stream segments.

Table A2-4: Riparian Indicators and Functioning Condition Rating by Stream Segment – Josephine Creek

Riparian/Wetland Indicators:	**JOS-002**	**JOS-003**

Riparian/Wetland Indicators:	JOS-002	JOS-003
Stream miles	1.16	1.47
Date of data collection	10/2000	10/2000
Diverse age class/structure of hydric vegetation (6)	Y	Y/N
Diverse composition of hydric vegetation (7)	Y	Y
Vegetation reflects maintenance of soil moisture (8)	Y	Y
Plant community comprised of bank stabilizing species (9)	Y	Y
Hydric vegetation exhibits high vigor (10)	Y	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y
Adequate large woody material (12)	Y	Y
Point bars revegetating with hydric species (14)	Y/N	Y
Noxious weeds are present (24a)	1/	
Overall functioning condition	**FAR+**	**PFC-**
Apparent trend	NA	NA
Pasture Number	1,2	1,2

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- 1/ Canada thistle on <1% of the area.

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Josephine Creek was re-assessed in 2011 and was in PFC. The stream is in a geologically confined channel and the stream banks are well armored with both woody species and bedrock. Redband trout, spotted frogs, and beaver were all observed.

Riparian Utilization Monitoring

Pasture 1 and 2 are early use pastures. Generally, they are grazed from mid-May to July 1. Stubble heights and shrub use are displayed in Table A2-5.

Table A2-5: Riparian Zone Monitoring and Stubble Height – Josephine Creek

Location	Pasture	Year	Stubble Inches	Shrub use %
JOS-002	1 & 2	10/2000	5	5-25
JOS-003	1 & 2	10/2000	5	5-25

Rose Creek

Rose Creek crosses public land in Pasture 4 for approximately 1 mile, and then forms the northwestern border of Pasture 2 for approximately 0.5- mile. Rose Creek was inventoried in October 2000 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Rose Creek was classified as Functional-At Risk.

Rose Creek in Pasture 2 is predominantly vegetated with Yellow Willow and Sandbar Willow Community Types. Sandbar willow typical sites are sand and cobble deposits subject to periodic

flooding each year, ditches, and lakeshores (Hansen 1995). The assessment identified from five to nine graminoids and four to five forbs growing on the segments. Canada thistle, a noxious weed in Idaho, was present on the segment.

Rose Creek in Pasture 4 is predominantly vegetated with a Sandbar Willow Community Type. There was surface water on only a portion of the segment. Generally, riparian conditions were better in the segment without water. Five graminoids were identified on the segment along with 4 forbs. Bulbous bluegrass was the most common grass.

Table A2-4: Riparian Indicators and Functioning Condition Rating by Stream Segment- Rose Creek

Riparian/Wetland Indicators:	**R0S-003**	**ROS-004**
Stream miles	0.56	1.05
Date of data collection	10/2000	10/2000
Diverse age class/structure of hydric vegetation (6)	Y	Y/N
Diverse composition of hydric vegetation (7)	Y	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y	Y/N
Hydric vegetation exhibits high vigor (10)	Y	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N
Adequate large woody material (12)	Y	Y/N
Point bars revegetating with hydric species (14)	Y/N	N
Noxious weeds are present (24a)	1/	N
Overall functioning condition	FAR	FAR
Apparent trend	UP	NA
Pasture Number	2	4

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- 1/ Canada thistle was found on < 1% of the area.
- ♦ Data not recorded (reach length not identified).

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A MMIM site was established on Rose Creek in pasture 4 in 2011. The mean stubble height was 7.3 inches, stream banks alteration was 5 percent, and woody use was 5.4 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels.

Riparian Utilization Monitoring

Pasture 2 is an early use pasture. Generally, it is grazed from mid-May to July 1.
Pasture 4 is normally grazed after Pasture 2 in July and/or August. Table A2-5 displays riparian zone monitoring data, including stubble height measurements, for Rose Creek.

Table A2-5: Riparian Zone Monitoring and Stubble Heights - Rose Creek

Location	Pasture	Year	Stubble Inches	Shrub use
ROS-004	4	10/2000	2	15-25%
ROS-003	2	10/2000	2-3	15-25%
Sec. 28 SW 1/4	2	8/1999	*	61-81%
Sec 31 NWNE	4	11/1999	3	71%
SEC 31 SWNE	4	9/1997	<4	*
Not specific	4	6/1992	<2	80-100%

- * Not measured this year

Long Valley Creek

Long Valley Creek is an intermittent or seasonal stream on public land in Pasture 1. Approximately 1.3 miles of Long Valley Creek was inventoried in October 2000 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). Approximately 10 percent was considered non-riparian (vegetated with upland plant communities). The segment was classified as Functional-At Risk. Vegetation community types growing on Long Valley Creek include Sandbar Willow Community Type, Western Rush Dominance Type (DT), White Sagebrush DT, and Woods Rose Community Type.

Table A2-6: Riparian Indicators and Functioning Condition Rating by Stream Segment – Long Valley Creek

Riparian/Wetland Indicators:	LVC-001
Stream miles	1.3
Date of data collection	10/2000
Diverse age class/structure of hydric vegetation (6)	Y
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y/N
Point bars revegetating with hydric species (14)	Y/N
Noxious weeds are present (24a)	N
Overall functioning condition	FAR
Apparent trend	NA
Pasture Number	1

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

Riparian Utilization Monitoring
Pasture 1 is an early use pasture that is generally grazed from mid-May to July 1. Monitoring data that was collected during the 2000 inventory is displayed in Table A2-7.

Table A2-7: Riparian Zone Monitoring and Stubble Height – Long Valley Creek

Location	Pasture	Year	Stubble Inches	Shrub use
LVC-001	1	10/2000	3-18	5-25%

Wickiup Creek

Wickiup Creek crosses public land for 1 mile in Pasture 6, and a 0.7-mile segment forms the border between Pastures 6 and 3.

An inventory of Wickiup Creek was conducted in October 2000 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The 2000 inventory placed the northern segment (WIC-001) in Functional-At-Risk-high with an upward trend and the southern segment in Functional-At Risk low to middle without apparent trend. The 2001 assessment placed the southern section (WIC-002) as Functional-At Risk with an upward trend.

The northern segment is vegetated with Whiplash Willow Community Type and Red Osier Dogwood Community Type. The southern segment is dominated by a Lemmon's Willow/Bench Community Type. Six different graminoids and 9 different forbs were growing on the segment.

Table A2-8: Riparian Indicators and Functioning Condition Rating by Stream Segment – Wickiup Creek

Riparian/Wetland Indicators:	WIC-001	WIC-002
Stream miles	0.7	1.05
Date of data collection	10/2000	10/2000
Diverse age class/structure of hydric vegetation (6)	Y	Y/N
Diverse composition of hydric vegetation (7)	Y	Y/N
Vegetation reflects maintenance of soil moisture (8)	Y	N
Plant community comprised of bank stabilizing species (9)	Y	Y/N
Hydric vegetation exhibits high vigor (10)	Y	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y/N
Adequate large woody material (12)	Y	Y
Point bars revegetating with hydric species (14)	Y/N	N
Noxious weeds are present (24a)	N	N
Overall functioning condition	FAR+	FAR-
Apparent trend	UP	NA
Pasture Number	3,6	6

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

- ♦ Data not recorded (reach length not identified).

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A MMIM site was established on Wickiup Creek in pasture 6 in 2011. The mean stubble height was 6.4 inches, stream banks alteration was 13 percent, and woody use was 6.7 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels.

Livestock use

Pasture 6 is used for approximately two weeks from July to September. The time varies from year to year. Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank, protection, prevention of sedimentation, and maintenance of plant communities. (USDI, BLM 1999)

Table A2-9: Riparian Zone Monitoring and Stubble Height - Wickiup Creek

Location	Pasture	Year	Stubble Inches	Shrub use
WIC-001	6	10/00	15	5-35%
WIC-002	6	10/00	1-2	5-35%

Springs

In 2004, Proper Functioning Condition Assessments were conducted on five springs in the Lone Tree Allotment. Two of the 5 springs were rated as Proper Functioning Condition, and two were rated as Functional-At Risk with an upward trend. Two were Functional-At Risk with a downward trend. Lone Tree was altered by the presence of a dam and trough and "2B" appeared to be drying out and losing riparian vegetation.

Table A2-10: Spring Evaluation

Spring	Location	Pasture	Functional Rating	Trend	Comments
Lone Tree	T7SR3W S35SWSE	1	FAR	NA	System altered by dam and trough. Near trough heavy pugging/shearing.
05871A	T7SR3WS 26SESW	1	FAR	UP	Some pugging
05871B	T7SR3WS 26 NWSW	1	FAR	DN	Pugging may be contributing to a drying of the surface and loss of riparian vegetation,
05872A	T3SR3WS 29NESE	2	PFC	NA	NR
05872B	T3SR3WS 28SW1/4	2	FAR	UP	Altered flow patterns/ frost heaving present

- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- NR – Not recorded.

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Lone Tree Spring was re-assessed in 2011 in PFC. Although there were non-functioning troughs present, the large meadow area had abundant and robust hydric species present. Recruitment was occurring and livestock related impacts were minimal.

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The information below represents all riparian-related data currently in the BLM's database relative to Standard 2 (also see Map RNGE-1A).

Table RIPN-1: Standard 2 riparian information for the Lone Tree allotment

	Allotment, Pasture Name, and Miles Assessed					
Stream Name	**Lone Tree 01**	**Lone Tree-03**	**Lone Tree-04**	**Lone Tree-06**	**Assessment Issues/ Impacts Identified**	**Total Miles**
Josephine Creek	1.2 (FARU-2000/ PFC-2011)				bank soils sheared/ some areas of erosion/ fence non-functional	1.2
	1.5 (PFC-2000)					1.5
Long Valley Creek	1.4 (FARS-2000)				grazing restricting willow cover/ areas of inadequate floodplain development and overwide channel	1.4
Rock Creek	1.0 (FARS-2000)				areas of inadequate soil moisture to support rip veg and vigorous plants/ areas where banks are unstable	1.0
Rose Creek	0.6 (FARU-2000)				areas of inadequate soil moisture/ areas where banks are unstable/ point bars are not revegetating	0.6
			1.0 (FARS-2000)		point bars are not revegetating/ presence of noxious weeds/ areas of inadequate soil moisture, hydric plants to support banks	1.0
Wickiup Creek		0.6 (FARU-2000)			point bars are not revegetating/ presence of noxious weeds	0.6
				1.0(FARU-2000)	areas of inadequate soil moisture, hydric plants to support banks/ point bars are not revegetating/ presence of noxious weeds	1.0

MMIM Metrics

Stream Name	Pasture/ Assessment Year	Mean Stubble Height (inches)	Woody Use (%)	Streambank Alteration (%)	Stable Bank (%)	Covered Bank (%)
Rose Creek	4/2011	7.3	5.4	5	78	100
Wikiup Creek	6/2011	6.4	6.7	13	66	96

Springs Assessed, Condition, & Issues Identified			
Spring Name	**Pasture/ Assessment Year**	**PFC Condition**	**Assessment Issues/ Impacts Identified**
Lone Tree Spring	1/2004 & 2011	FAR & PFC	2004: system altered by dam and trough. Near trough heavy pugging/shearing of soils 2011: hydric spp abundant/ recruitment/ non-functioning troughs
Unnamed Spring "05871A"	1/2004	FAR	altered flow patterns
Unnamed Spring "05871B"	1/2004	FAR	altered flow patterns/ losing soil moisture/ inadequate rip veg
Unnamed Spring "05872A"	1/2004	PFC	
Unnamed Spring "05872B"	1/2004	FAR	altered flow patterns/ frost heaving present

3. Standard: Stream Channel/Floodplain

Streams in the Lone Tree Allotment include Rock, Josephine, Long Valley, Wickiup, and Rose creeks. Inventories and assessments were conducted by the Bureau of Land Management (BLM) following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) between 2000 and 2001. Table A2-1 under Standard 2, provides a summary of the latest Proper Functioning Condition of segments of the creeks.

Rock Creek

Approximately 0.9-mile of Rock Creek crosses public land in Pasture 1. Rock Creek was inventoried in October 2001, using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). One Proper Functioning Condition assessment was conducted in June; the inventory was conducted in October. The assessments rated Rock Creek as Functional-At Risk high or Functional-At Risk with upward trend.

Thirty-five to forty-five percent of the ROC-006 stream segment was a Rosgen B5c Stream Type. The B5c stream types are moderately entrenched systems with less that 2 percent slope. They are relatively stable where there is dense riparian vegetation (Rosgen 1996). Rock Creek data indicates the stream has deep binding root mass on 65-84 percent of the stream. Sixty-six to eighty percent of the stream banks were covered or uncovered and stable. Active bank erosion was occurring on 1 to 5 percent of the stream.

Table A3-2: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Rock Creek

Stream Channel/Flood Plain Indicator	ROC-006
Date of data collection	10/2001
Floodplain inundated frequently (1)	Y/N
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N
Point bars revegetating with hydric species (14)	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y/N
Overall functioning condition	FAR+
Apparent trend	NA
Stream miles	0.9

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- NR – Reach length not identified.

Josephine Creek

Josephine Creek forms the boundary between Pastures 1 and 2 for approximately 2.7 miles. Josephine Creek was inventoried using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) in October 2000. The stream segments were identified as JOS-002 and JOS-003. JOS-002 was classified as high Functional-At Risk and JOS-003, the larger of the segments, was identified as Proper Functioning Condition.

JOS-002 and JOS-003 were identified as Rosgen B4c streams. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. They are considered relatively stable and are not high sediment supply stream channels. Assessment data indicates that 65-84 percent of the channels have vegetation with deep binding root mass. Seventy to 90 percent of the stream banks on JOS-002 and 80-100 percent of JOS-003 are stable. Less than 1 percent of the banks have active erosion.

Table A3-3: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Josephine Creek

Stream Channel/Flood Plain Indicator	JOS-002	JOS-003
Date of data collection	10/2000	10/2000

Stream Channel/Flood Plain Indicator	JOS-002	JOS-003
Floodplain inundated frequently (1)	Y	Y
Beaver dams are active and stable (2)	N	Y
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y	Y
Upland watershed not contributing to riparian degradation (5)	Y	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y
Adequate large woody material (12)	Y	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N
Point bars revegetating with hydric species (14)	Y/N	Y
Lateral stream movement associated with natural sinuosity (15)	Y	Y
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y	Y
Overall functioning condition	FAR+	PFC-
Stream miles	1.16	1.47

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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Josephine Creek was re-assessed in 2011 and was in PFC. The stream is in a geologically confined channel and the stream banks are well armored with both woody species and bedrock. Redband trout, spotted frogs, and beaver were all observed.

Rose Creek

Rose Creek crosses public land in Pasture 4 for approximately 1 mile. It then crosses on to the northwestern border of Pasture 2 for approximately 0.5 miles.
Rose Creek was inventoried using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) in 2000 and 2001. The 2000 assessment classified ROS-003 as Functional-At Risk with an upward apparent trend, ROS-004 was classified as FAR, apparent trend was not identified. However, the June 2001 inventory of ROS-004 found an upward apparent trend.

Segments ROS-003 and ROS-004 were identified as Rosgen B4c streams. The B4c stream types are moderately entrenched systems with gradients of less than two percent, they are considered relatively stable and are not high sediment supply steam channels (Rosgen 1996). Fifty to seventy percent of the streambanks were covered stable or uncovered stable. Active bank erosion was occurring on 1-5 percent of the streams.

Table A3-4: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Rose Creek

Stream Channel/Flood Plain Indicator	ROS-003	ROS-004
Date of data collection	10/2000	10/2000
Floodplain inundated frequently (1)	Y	Y/N

Stream Channel/Flood Plain Indicator	ROS-003	ROS-004
Beaver dams are active and stable (2)	N	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N
Adequate large woody material (12)	Y	Y/N
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y
Point bars revegetating with hydric species (14)	Y/N	N
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y	Y/N
Overall functioning condition	FAR	FAR
Apparent trend	UP	NA
Percent of stream bank accessible to livestock	95-100%	95-100%
Stream miles	0.56	1.05

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- NR – Reach length not identified.

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A MMIM site was established on Rose Creek in pasture 4 in 2011. The mean stubble height was 7.3 inches, stream banks alteration was 5 percent, and woody use was 5.4 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels.

Long Valley Creek

Long Valley Creek is an intermittent to ephemeral stream on public land in Pasture 1. Long Valley Creek was inventoried using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) in October 2000. The inventoried segment was 1.3 miles long and identified as LVC-001. This segment was identified as Functional-At Risk middle to high, apparent trend was not identified.

The steam was classified as a Rosgen B3c type. The B3c stream types are moderately entrenched systems with gradients of less than 2 percent. The bed and bank materials of the B3 steam types are stable and contribute only small quantities of sediment during runoff events. The LVC-001 segment had deep binding root mass on 35-64 percent of the segment. Sixty to eighty percent of the banks were stable, and active erosion was occurring on 1-5 percent of the banks.

Table A3-5: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Long Valley Creek

Stream Channel/Flood Plain Indicator	LVC-001

Stream Channel/Flood Plain Indicator	LVC-001
Date of data collection	10/2000
Floodplain inundated frequently (1)	Y/N
Beaver dams are active and stable (2)	NA
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N
Upland watershed not contributing to riparian degradation (5)	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y/N
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars re-vegetating with hydric species (14)	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition	FAR
Percent of stream bank accessible to livestock	95-100%
Stream miles	1.3

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

Wickiup Creek

Wickiup Creek crosses public land for 1 mile in Pasture 6, and a 0.7-mile segment forms the border between Pastures 6 and 3.

Wickiup Creek was inventoried using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D) in October 2000 and again for Proper Functioning Condition in June 2001. The 2000 assessment divided the stream into segments WIC-001 and WIC-002. The WIC-001 segment was identified as high Functional-At Risk with an upward apparent trend. Segment WIC-002 was identified as Functional-At Risk low, without an apparent trend. The 2001 assessment was conducted at the same location as WIC-002, and classified the segment as Functional-At Risk but with an upward trend.

The 2000 assessment identified 35 to 45 percent of WIC-001 as a Rosgen F4 stream type. The F4 stream types are gravel dominated, entrenched, meandering channels, deeply incised in gentle terrain. The survey found deep binding root mass on 65-85 percent of the banks. The streambanks were stable on 70-90 percent of the segment, and active bank erosion was occurring on less than 1 percent.

The 2000 assessment identified 35-45 percent of WIC-002 as a Rosgen B4c stream type. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. They are considered relatively stable and are not a high sediment supply steam channels (Rosgen

1996). The WIC-002 segment had deep binding root mass on less than 35 percent of the area, and stable banks on 40-70 percent of the streambanks. Five to fifteen percent of the streambanks had active bank erosion.

Table A3-6: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Wickiup Creek

Stream Channel/Flood Plain Indicator	WIC-001	WIC-002
Date of data collection	10/2000	10/2000
Floodplain inundated frequently (1)	Y/N	Y
Beaver dams are active and stable (2)	N	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	N
Upland watershed not contributing to riparian degradation (5)	Y	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y/N
Adequate large woody material (12)	Y	Y
Floodplain and channel characteristics dissipate energy (13)	Y	Y/N
Point bars revegetating with hydric species (14)	Y/N	N
Lateral stream movement associated with natural sinuosity (15)	Y	Y/N
System is vertically stable (16)	Y/N	Y
No excessive erosion or deposition (17)	Y	N
Overall functioning condition*	FAR+	FAR-
Apparent trend	UP	NA
Stream miles	0.7	1.05

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- ♦ Data not collected or displayed (reach length not identified).

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A MMIM site was established on Wickiup Creek in pasture 6 in 2011. The mean stubble height was 6.4 inches, stream banks alteration was 13 percent, and woody use was 6.7 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels.

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The information below represents all riparian related data currently in the BLM's database relative to Standard 3 (also see Map RNGE-1A).

Table RIPN-2: Standard 3 riparian information for the Lone Tree allotment

	Allotment, Pasture Name, and Miles Assessed					
Stream Name	**Lone Tree 01**	**Lone Tree- 03**	**Lone Tree- 04**	**Lone Tree-06**	**Assessment Issues/ Impacts Identified**	**Total Miles**
Josephine Creek	1.2 (FARU-2000/ PFC-2011)				bank soils sheared/ some areas of erosion/ fence non-functional	1.2
	1.5 (PFC-2000)					1.5
Long Valley Creek	1.4 (FARS-2000)				grazing restricting willow cover/ areas of inadequate floodplain development and overwide channel	1.4
Rock Creek	1.0 (FARS-2000)				areas of inadequate soil moisture to support rip veg and vigorous plants/ areas where banks are unstable	1.0
Rose Creek	0.6 (FARU-2000)				areas of inadequate soil moisture/ areas where banks are unstable/ point bars are not revegetating	0.6
			1.0 (FARS-2000)		point bars are not revegetating/ presence of noxious weeds/ areas of inadequate soil moisture, hydric plants to support banks	1.0
Wickiup Creek		0.6 (FARU-2000)			point bars are not revegetating/ presence of noxious weeds	0.6
				1.0(FARU-2000)	areas of inadequate soil moisture, hydric plants to support banks/ point bars are not revegetating/ presence of noxious weeds	1.0

MMIM Metrics						
Stream Name	**Pasture/ Assessment Year**	**Mean Stubble Height (inches)**	**Woody Use (%)**	**Streambank Alteration (%)**	**Stable Bank (%)**	**Covered Bank (%)**
Rose Creek	4/2011	7.3	5.4	5	78	100
Wikiup Creek	6/2011	6.4	6.7	13	66	96

4. Standard: Native Plant Communities

Ten rangeland health evaluations were completed in the Lone Tree Creek Allotment during 2001. The evaluations were conducted in accordance with the procedure described in BLM-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health- Version 3". Indicators relating to biotic integrity are summarized in Table A4-1, Appendix E shows individual indicator ratings, by site, and the allotment map shows the locations represented by health assessments.

Table A4-1: Indicators of Rangeland Health

Standard 4-	Degree of Departure				
	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1*[1]	8	6	2	2	0
Pasture 2*[2]	8	6	2	2	0
Pasture 3*[3]	12	4	0	2	0
Pasture 4*[4]	9	7	1	1	0
Pasture 5*[5]	6	2	0	0	1
Pasture 6*[6]	7	1	0	0	1

*[1]- summarizes; 1 Loamy 12-16" and 1 Shallow Claypan 12-16" ecological sites
*[2]- summarizes; 2 Shallow Claypan 12-16" ecological sites
*[3]- summarizes; 1 Loamy 13-16" and 1 Shallow Claypan 12-16" ecological sites
*[4]- summarizes; 1 Loamy 13-16" and 1 Shallow Claypan 12-16" ecological sites
*[5]- summarizes; 1 Loamy 13-16" ecological site
*[6]- summarizes; Loamy 13-16" ecological site

Pasture 1

RH1A, (T07S R3W Sec26) represents a Loamy 13-16"ecological site in the northern portion of the pasture. At this location, the indicator for invasive plants rated in the moderate-to-extreme range of departure from expected conditions for this ecological site, due to the common occurrence of Western juniper. The indicator for functional/structural groups rated in the moderate range of departure. Western juniper was contributing to the altered balance of the plant community, as well as an increase in rabbitbrush, and fewer large perennial bunchgrasses than expected. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure. These ranges represent acceptable deviations in condition.

RH1B, (T7S R3W Sec35) represents a Shallow Claypan 12-16" ecological site in the central portion of the pasture. At this location, the indicator for invasive plants rated in the moderate-to-extreme range of departure due to the common occurrence of Western juniper. The indicator for functional/structural groups rated in the moderate range of departure. This indictor was characterized by the increase in Western juniper, fewer Idaho fescue plants than expected, and increase in Sandberg bluegrass, and fewer biological crusts. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

Long-term Vegetation Studies (Trend)
A photo-plot study was established at T 07S, R 03W, Sec 35 in 1987. The site was not re-visited until 2005 when it was converted to a nested plot frequency transect study. Landscape and plot photographs show improved conditions of the plant community during the period of record. The 1987 photos show a degraded site, with broken shrubs, few grasses, and bare ground. The 2005 photos show good ground cover by both shrubs and grasses, and an increase in the presence of Western juniper. Nested frequency data collected in 2005, recorded low sagebrush in 46 percent of the plots, bluebunch wheatgrass had 4 percent frequency, Idaho fescue with 82 frequency, Sandberg bluegrass in 86 percent of the plots and squirreltail had 10 percent frequency.

Additionally, 14 percent of the plots recorded low sagebrush seedlings. Perennial forbs at this site included mountain dandelion, milkvetch, paintbrush, hawksbeard, lupine, and buckwheat.

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Data were collected at the nested plot frequency transect (T 07S, R 03W, Sec 35) in 2011. Frequency data for perennial bunchgrass species indicate a static trend in condition with little change in the frequency of bluebunch wheatgrass, Idaho fescue, and squirreltail. The frequency of Sandberg bluegrass recorded was less in 2011 than in 2005, although the difference was not statistically significant (students T-test; p-value <0.1). While the recorded density of mature low sagebrush did not change between 2005 and 2011, the density of low sagebrush seedlings has increased. Data are presented in the following graphs. These data were not presented in graph form within the 2006 assessment for the Lone Tree allotment (Appendix G) due to only one year of data available at that time.

Figure VEG-1: Frequency of native perennial bunchgrass species at the trend transect (T. 07S., R. 03W., Sec 35) in pasture 1 of the Lone Tree allotment

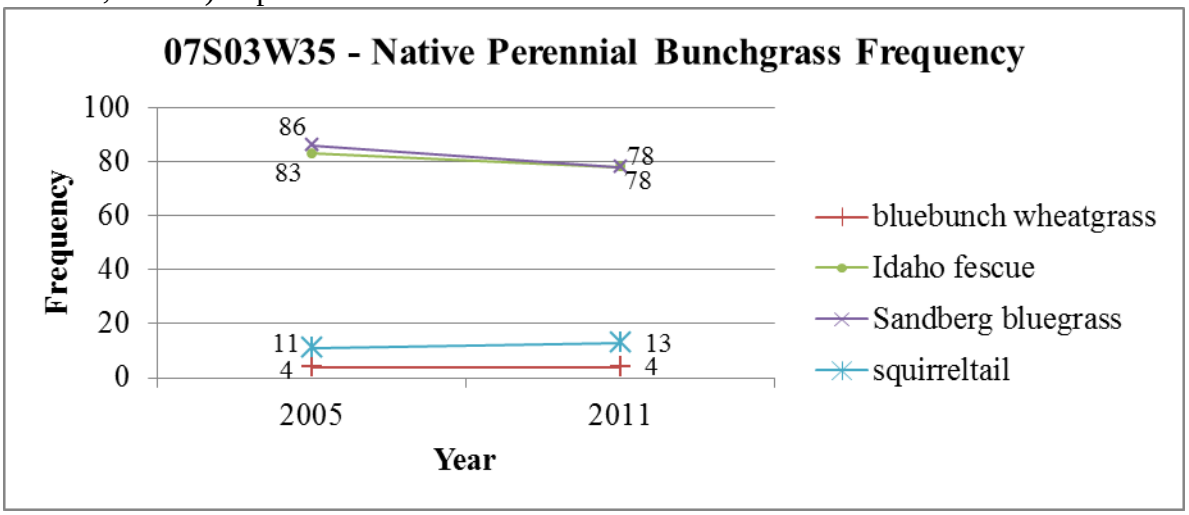
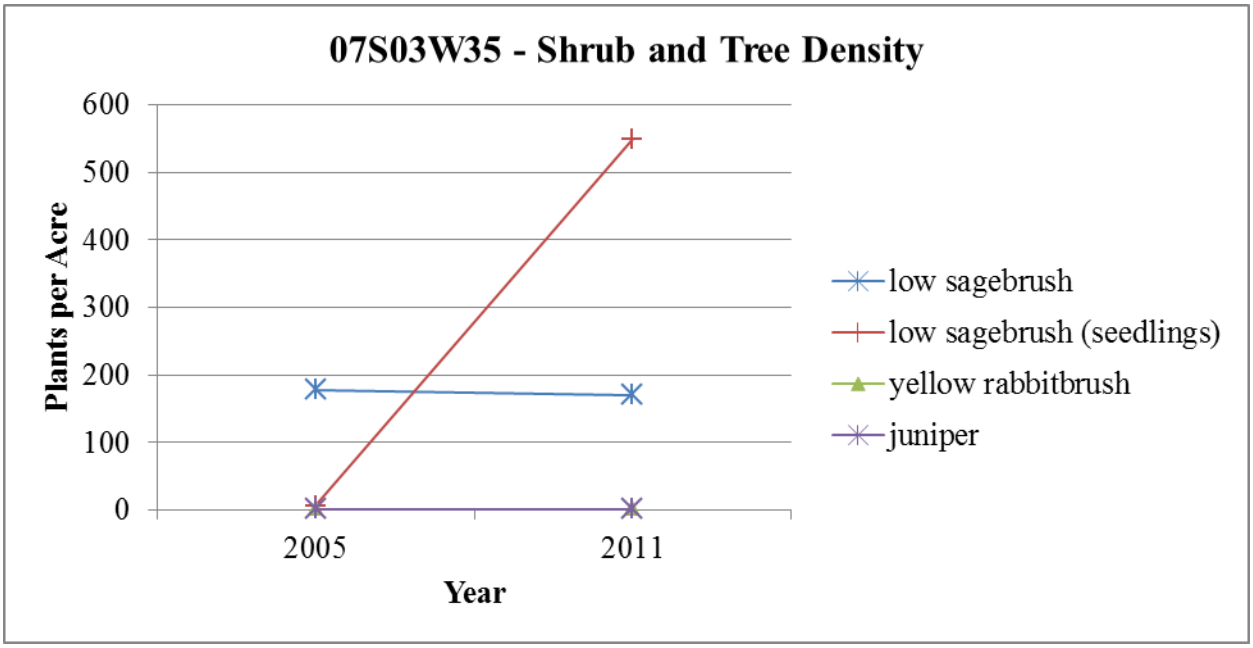


Figure VEG-2: Shrub and tree density at the trend transect (T. 07S., R. 03W., Sec 35) in pasture 1 of the Lone Tree allotment



Trend data in pasture 1 show a continuation of static trend for the ecological status of public lands in the Lone Tree allotment, summarized in the 1999 Proposed Owyhee Resource Management Plan and Final Environmental Impact Statement (Table VEG-2). Those inventoried vegetation condition data reported 35 percent early-seral, 65 percent mid-seral, and no late-seral or potential natural condition.

The recent trend data that indicate a similar frequency of Sandberg bluegrass and Idaho fescue are not consistent with notes from both rangeland health assessment sites in this pasture. A greater dominance of Sandberg bluegrass with an observed presence of Idaho fescue at less-than-reference-site conditions was noted in both qualitative rangeland health assessment write-ups for pasture 1. Photos taken at the time of the rangeland health assessment in 2001 support the notes identifying a reduced presence of mid-statured bunchgrasses compared to reference site conditions.

Similarly, the rangeland health assessments and photos for pastures 3 and 4 identify a reduction in mid-statured bunchgrasses and increase in Sandberg bluegrass when compared to reference site conditions. The presence of mid-statured bunchgrasses in pastures 5 and 6 that is noted in rangeland health assessments and observable in accompanying photos is more consistent with its co-dominance with sagebrush species at reference site conditions.

Although juniper dominance was noted at both rangeland health reporting sites, the equivalent data for juniper density recorded only one tree in 2005 and in 2011. While mature low sagebrush density remained consistent between 2005 and 2011, low sagebrush seedlings increased greatly between these two dates.

No trend plots have been established in pastures of the Lone Tree allotment other that the one in

pasture 1.

Pasture 2

RH2A (T7S R3W Sec28) represents a Shallow Claypan 12-16" ecological site in the northwestern portion of the pasture. At this location, the indicator for invasive plants rated in the moderate-to-extreme range of departure due to the common occurrence of Western juniper in localized areas. The indicator for functional/structural groups rated in the moderate range of departure. Bluebunch wheatgrass and Idaho fescue were less common than expected and generally persisted under shrub canopies, and not in interspaces. Sandberg bluegrass was the dominant herbaceous species, and biological crust were less common than expected. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable deviations in condition.

RH2B (T7S R3W Sec28) represents a Shallow Claypan 12-16" ecological site in the eastern portion of the pasture. At this location, the indicator for invasive plants rated in the moderate-to-extreme range of departure due to the dominance of Western juniper, with multiple age classes represented. The functional/structural group indicator rated in the moderate range of departure. The common occurrence of Western juniper contributes to the rating as well as reduction of larger perennial bunchgrasses and biological crusts. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable deviations in condition.

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Pasture 2 has been combined with pasture 1.

Pasture 3

RH3A (T7S R3W Sec32) represents a Shallow Claypan 12-16" ecological site in the northwestern portion of the pasture. The indicator for invasive plants rated in the moderate range of departure due to the common occurrence of Western juniper and rabbitbrush. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable deviations in condition.

RH3B (T7S R3W Sec32) represents a Loamy 13-16" ecological site with inclusions of Shallow Claypan 12-16" in the northern portion of the pasture. The indicator for invasive plants rated in the moderate-to-extreme range of departure from expected conditions for this ecological site due to the co-dominance of Western juniper, and the increase of rabbitbrush. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable deviations in condition.

Pasture 4

RH4A (T7S R4W Sec19) represents a Shallow Claypan 12-16" ecological site with inclusions of Loamy 13-16" ecological site in the northern portion of the pasture. The indicator for invasive plants rated in the moderate range of departure due to the increase of Western juniper and rabbitbrush. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable deviations in condition.

RH4B (T7S R3W Sec31) represents a Loamy 13-16" ecological site, with inclusions of Shallow Claypan 12-16" ecological site in the northern portion of the pasture. The indicator for invasive plants rated in the moderate-to-extreme range of departure, due to the common occurrence of Western juniper, the increase of rabbitbrush, and cheatgrass. The indicator for functional/structural groups rated in the moderate range

Pasture 5

RH5A (T8S R3W Sec35) represents a Loamy 13-16" ecological site with inclusions of Shallow Breaks ecological site. This site is in an historic burn with adequate bunchgrasses, more than desired western juniper, with all functional/structural vegetative groups present. Surface resistance to erosion is adequate with rock/gravel armor, slight soil loss in flow paths, good organic matter, and sufficient biological crust and herbaceous understory species. Litter and production amount is as expected, but largely from western juniper which dominates the site. Rabbitbrush is increasing and species have good seedhead production and recruitment on the site.

Pasture 6

RH6A (T8S R3W Sec26) represents a Loamy 13-16" ecological site with inclusions of Very Shallow Stony Loam ecological site. The soil surface is stabilized with rock/gravel armor and organic matter, some crusting, and no evidence of accelerated erosion. Litter amount is as expected with more western juniper than expected. Structural/functional vegetative groups are as expected, except slightly more Western juniper and Sandberg bluegrass than desired. Western juniper dominates the overstory, there is cheatgrass in disturbed areas and along roads and good seedhead production and recruitment is occurring.

Utilization Monitoring

Utilization refers to the percentage of annual production of forage that has been removed by animals throughout the grazing season. Utilization was collected on September 4, 1997. Utilization in Pasture 1 and 2 was generally light. Utilization study data was collected in Pasture 2 on August 3, 1999. Average utilization on Idaho fescue was 63 percent.

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Utilization records for the pastures of the Lone Tree allotment through 2012 are summarized in the following graphs:

Figure VEG-3: Average annual utilization in pasture 1 of the Lone Tree allotment

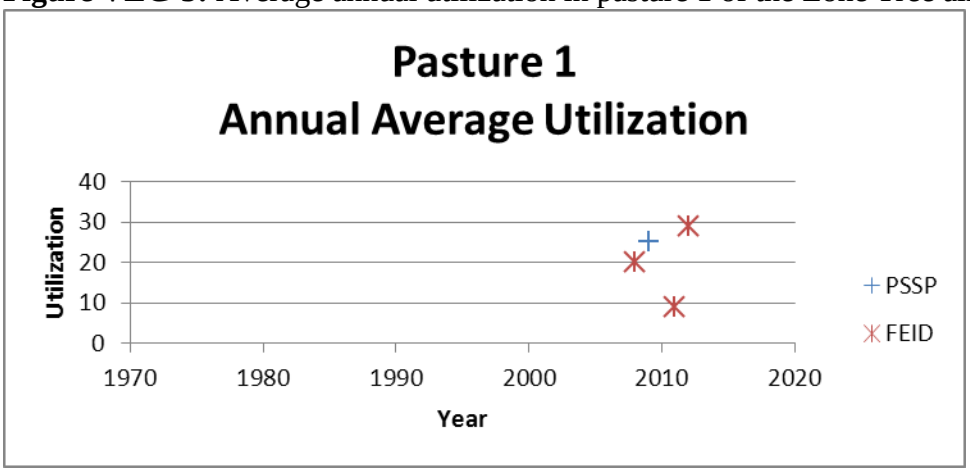


Figure VEG-4: Average annual utilization in pasture 2 of the Lone Tree allotment

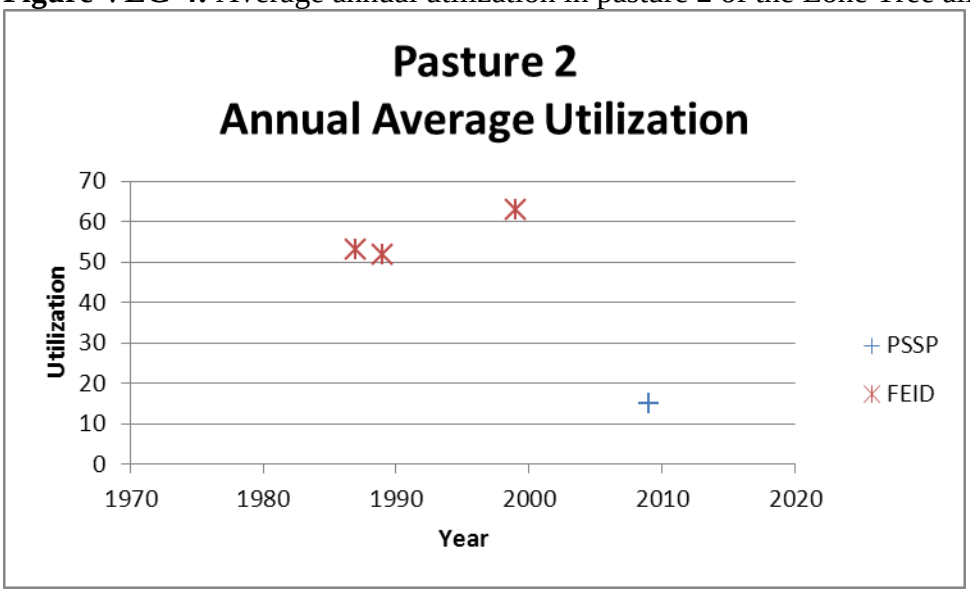


Figure VEG-5: Average annual utilization in pasture 3 of the Lone Tree allotment

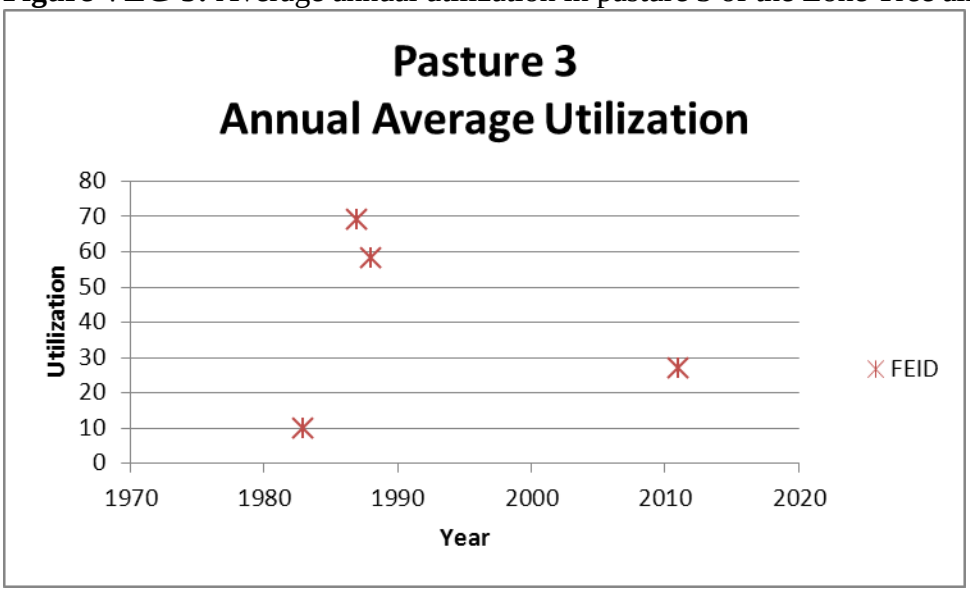


Figure VEG-6: Average annual utilization in pasture 4 of the Lone Tree allotment

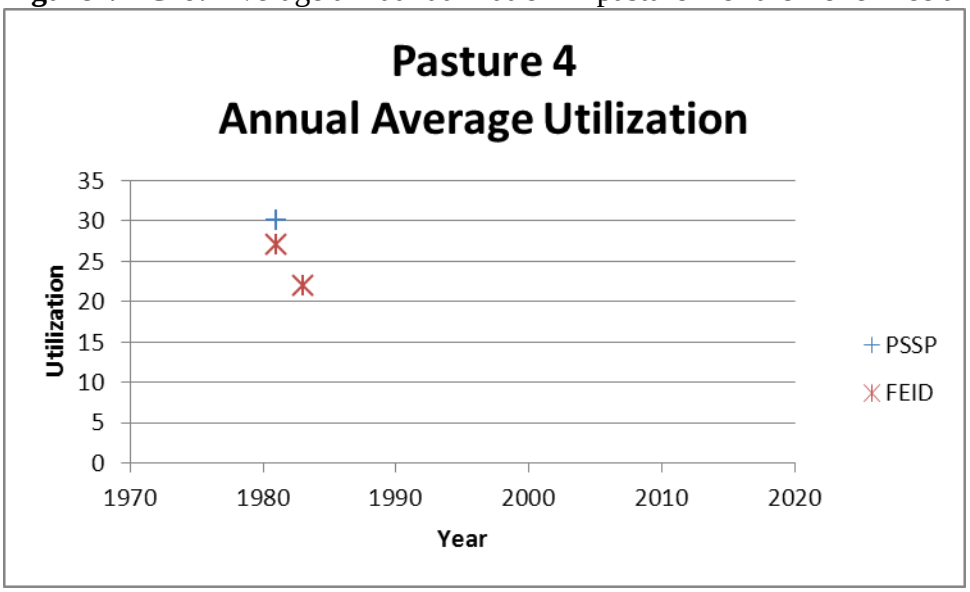
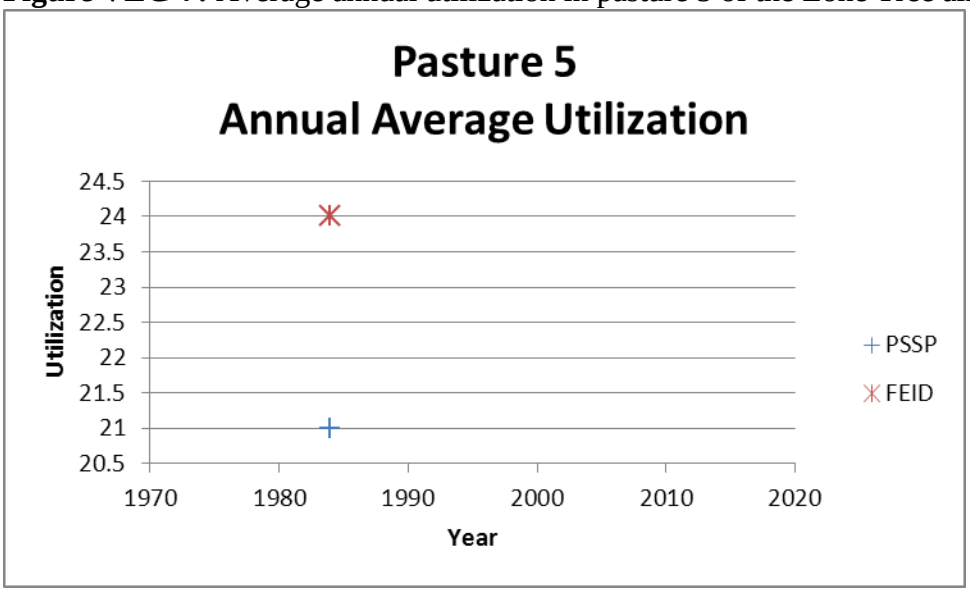


Figure VEG-7: Average annual utilization in pasture 5 of the Lone Tree allotment



These data indicate that recorded utilization of key species has not exceeded the upland forage utilization limit of 50 percent identified in the Livestock Grazing Management Actions and Allocations of the ORMP since its implementation in 1999. One exception was a recorded 63 percent utilization of Idaho fescue in pasture 2 that was noted in the 2006 evaluation.

5. Standard: Rangeland Seeding

This standard does not apply.

6. Standard: Exotic Plant Communities

This standard does not apply.

7. Standard: Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is broken into basins, sub-basins, and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

Bureau of Land Management (BLM) collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream

survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data is available at the Owyhee Field Office).

Pasture 1

Rock Creek is within assessment unit #17050108SW010_03. The IDEQ has divided Rock Creek into two assessment units, one above, and one below Triangle Reservoir. Rock Creek flows through the northwest corner of Pasture 1 for about 0.9 of a mile below the reservoir. IDEQ assessed this segment in 1996 with a Beneficial Use Reconnaissance Program (BURP). Beneficial uses are identified as Aquatic Life Use-Cold and Secondary Contact for Recreation. Criteria for both uses are listed as being fully met. Subsequent data collected by the BLM both support and contradicts meeting the criteria for the two uses.

A water sample was taken June 3, 2004 and tested for the bacteria *Escherichia coli (E. coli).* The result was 310 organisms' per 100 milliliters, well within the standard of 576 per 100 millimeters for recreation secondary contact.

The State of Idaho criterion for cold-water biota beneficial use requires water temperatures of 22º Celsius (C) or less with a maximum daily average of less than 19 degrees Celsius. In June 1996 the IDEQ recorded a temperature of 19º Celsius. In June 2004 the BLM installed temperature logger and removed it in early October 2004. Over the summer the stream temperature exceeded the cold-water aquatic life and salmonid spawning standards.

Pastures 1 and 2

Josephine Creek dissects Pasture 1 and Pasture 2 for about 3 miles, forming the boundary between the pastures. Josephine Creek is the assessment unit and is identified as 17050108SW012_04. It has not been assessed nor assigned standards by IDEQ.

Pastures 2 and 4

Rose Creek flows for one-mile on BLM administered public lands in Pasture 4, and for 0.75-mile in the north-west corner of Pasture 2. Rose Creek assessment unit, 17050108SW011_02, has not been assessed by IDEQ. Furthermore, water quality standards have not been assigned and no BURP inventory is available. However, a water sample was taken June 3, 2004 by the BLM and tested for the bacteria *E. coli.* The result was 380 organisms' per100 milliliters, well within the standard of 576 per 100 millimeters for recreation secondary contact.

The State of Idaho criterion for cold-water biota is water temperatures of 22º Celsius (C) or less with a maximum daily average of less than 19 degrees Celsius. In June 2004 the BLM installed a temperature logger and removed it in early October 2004. Over the summer, the stream temperature exceeded the cold-water aquatic life and salmonid spawning temperature standards.

Pastures 3 and 6

Wickiup Creek flows through Pasture 6 for approximately one mile on BLM public land, and for one-half mile in Pasture 3. Wickiup, 17050108SW012_3, is a tributary to the Josephine assessment unit. As such, it has not been assessed nor assigned standards by IDEQ. In 2001, the BLM collected limited data on water temperature, finding the temperature meets the standard for cold-water biota.

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Current IDEQ information identifies that there are approximately 3.5 miles of stream that are fully supporting the assigned beneficial uses, and 11.3 miles of stream that have not been assessed within six assessment units (AUs) on BLM lands within the Lone Tree allotment. Thus, the Standard is being met in pasture one, and although there are streams present in pastures 2-5, Standard 7 is not applicable.

8. Standard: Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Lone Tree Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in spring, seep, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required.

One Special Status Plant Species, dimeresia, is known to occur in the Lone Tree Allotment. A population of Dimeresia, a small annual forb, is located in pasture 1. It is a BLM Type 3 status species, which designates species that are globally rare with moderate endangerment factors.

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Botany

One special status plant species, doublet (*Dimeresia howellii*), is known to occur in the Lone Tree allotment. This population is located in pasture 1 (EO 3587). Doublet is a small annual forb that flowers in spring through summer. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Livestock do not target this diminutive plant as forage; however, these plants may inadvertently get trampled. This plant grows in open gravelly or sandy places on talus slopes screens and serpentine substrate.

Information sources

Elemental Occurrences (EOs) for SSP populations are recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Lone Tree allotment include RHAs, photographs, field

notes, Plants database (USDA NRCS, 2013), literature search, and information summarized above in RHA Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as Bureau of Land Management (BLM) "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within these allotments. A summary of these species, their legal status, and their key habitat associations are listed in Appendix C-3.

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Wildlife Habitats

Information Sources

Information sources that were used to assess and evaluate the composition and condition of wildlife habitats within the Lone Tree allotment include sage-grouse habitat assessments (SG HA; 2004), land cover classification (2002), aerial imagery (2011), photographs (2000, 2001, 2004, 2008, 2009, 2011), in addition to information summarized above in Standards 1, 2, 3, 4, and 7 in this document.

Landscape Setting

Two Level IV Ecoregions of Idaho are represented within the present allotment and include the Owyhee Uplands and Canyons (80f) and Semiarid Uplands (80j) (Map WDLF-1) (McGrath, et al., 2002). Although these ecoregions are relatively similar, they are distinguished by differences in physiography, precipitation, and elevation. The Owyhee Uplands and Canyons ecoregion occurs at mid to high elevations and is characterized by a volcanically-derived landscape of lava fields and tuffaceous outcrops dissected by deep, sometimes precipitous canyons. Vegetation communities in this ecoregion include mesic shrub steppe, mountain shrub, and woodlands. The Owyhee Uplands and Canyons ecoregion is best represented in Lone Tree pastures 1, 2, and portions of 3 (Map WDLF-1). The Semiarid Uplands ecoregion is characterized by mountains, hills, and valleys that ascend out of the surrounding uplands; these areas typically are dominated by mesic shrub steppe, mountain shrub, woodland, and forest communities (Map WDLF-1). The Semiarid Uplands ecoregion in the allotment is represented primarily in pastures 4, 5, and 6 and the southern portion of pasture 3, and is characterized by mountain ridges and slopes with juniper woodland and mountain big sagebrush mesic shrub steppe vegetation communities.

Habitat, Cover Types, and Ecological Sites

A variety of major habitats and general cover types occur within the allotment (Table WDLF-1; Map WDLF-2). These upland and riparian habitats and cover types occur within a variety of ecological sites that will be discussed by pasture in more detail below.

Table WDLF-1: Major habitat and general cover types within the Lone Tree allotment

Habitat Type	General Cover Type	Percentage of Allotment	
		General Cover Type	Habitat Type
Grassland	bunchgrass	3	3

Shrub Steppe[1]	big sagebrush	1	41
	mountain big sagebrush	21	
	low sagebrush	19	
Mountain Shrub	mountain shrub	16	16
	bitterbrush	<1	
Forest	aspen	<1	39
	juniper	39	
	Douglas-fir	<1	
Riparian	wet meadow	1	1

[1]Shrub steppe habitat type includes the predominant big and low sagebrush communities in the area. Big sagebrush (*Artemisia tridentata*) cover types include communities dominated by the subspecies Basin (*tridentata*). Mountain big sagebrush (*A. tridentata vaseyana*) and low sagebrush (*A. arbuscula*) cover types comprise the remaining sagebrush communities.

Focal Special Status Species

Greater sage-grouse

Population Ecology

Only one occupied lek is located in or near the allotment. In addition, the allotment is located within the lek's 75 percent breeding bird density (BBD) buffer (4 mile; Table WDLF-2 and below).

Table WDLF-2: Attendance at the occupied lek[1] within 4 miles of the Lone Tree allotment, 2007-2012

Lek[2]	**Pasture/s**	**Survey Year[3]**					
		2012	**2011**	**2010**	**2009**	**2008**	**2007**
2O541*	1, 2	0	--	--	11	19	--

[1]A traditional display area where two or more male sage-grouse have attended in 2 or more of the previous 5 years (Idaho Sage-grouse Advisory Committee 2006).
[2]Leks with 75 percent BBDs are designated by an asterisk.
[3]Surveys were not conducted in years indicated by dashes (--).

Habitat Characteristics

Northern Great Basin Population/Owyhee Subpopulation Mid-Scale
Recently, Idaho BLM initiated a modeling effort to identify preliminary priority sage-grouse habitat (PPH) within the Snake River Plain MZ (Makela & Major, 2012). Priority habitat includes breeding, late brood-rearing, and winter concentration areas. Because priority habitat areas have the highest conservation value for maintaining the species and its habitat, it is BLM policy (as per WO IM 2010-071) to identify these areas in collaboration with respective state wildlife agencies. Only a small portion of the northeast corner of pasture 1 is classified as PPH (Map WDLF-3). However, a substantial portion of pasture 1 and a very small portion of pasture 4 are classified as PGH (Map WDLF-3).

Owyhee Front/Triangle Local Population Fine-scale

A review of the 2012 PPH output revealed that the area around the Toy Mountain group allotments in one of the critical input data layers (i.e., Idaho Sage-grouse Key Habitat Planning Map) had for the most part not been refined since its initial creation in the early 2000s. Much of the area was coarsely classified as Conifer Encroachment (R3). Review of recent (2012) aerial imagery and an Owyhee Field Office (OFO) land cover classification (Bunting & Strand, 2008) of the area have provided better habitat information and edits to be incorporated into the 2013 Greater Sage-grouse Habitat Planning Map (as per IM ID-2013-010). The update identifies large areas of currently Key Habitat (K) that were misclassified as R3 across the OFO, especially in the Toy Mountain group area. The update reveals that pasture 1 has a small amount of key habitat and a substantial amount of conifer encroachment areas (Maps WDLF-4 and WDLF-5A). Pasture 4 also has a small amount of conifer encroachment area (Maps WDLF-4 and WDLF-5A).

Allotment/Pasture Site-scale
Based on a telemetry study of sage-grouse from the Owyhee Front/Triangle local population, seasonal locations show that the allotment contains differing amounts of breeding, upland summer, early and late brood-rearing riparian summer, and winter seasonal habitats (Table WDLF-3; Map WDLF-6; also see narrative under each allotment pasture).

Table WDLF-3: Seasonal habitat types within the Lone Tree allotment on BLM lands

Allotment	Pasture	Seasonal Habitat[1]			
		Breeding	**Upland Summer**	**Early/Late Brood-rearing Lentic/Lotic Areas**	**Winter**
Box T	1	X		X	
	4	*	*		*

[1]Asterisk indicates potential seasonal habitats present but not corroborated with local population seasonal use areas.

Habitat Assessments
The current conditions of sage-grouse seasonal habitats were assessed following protocols outlined in the Sage-grouse Habitat Assessment Framework (SG HAF; (Stiver, Rinkes, & Naugle, 2010)). The primary habitat indicators and habitat suitability ranges within the SG HAF are consistent with sage-grouse habitat management guidelines provided by Connelly et al. (2000), the State of Idaho's sage-grouse management alternative (The State of Idaho, 2012), and interim BLM sage-grouse habitat management guidance as per WO-IM 2012-043. Habitat indicators and suitability ranges should not be viewed independently but rather as an assembly of vegetation components that contribute to providing for sage-grouse seasonal habitat requirements.

Riparian Habitat
The riparian habitats in this allotment are in various states of functionality. Structural diversity, composition, and vigor of hydric vegetation are at least partially lacking in stream reaches rated Functional-At Risk (FAR) static resulting in habitat that is generally not adequately providing for the needs for dependant special status animals. See table A8-3.

Five springs have been assessed in the allotment. Two springs are PFC and two springs are Functional-At Risk with an upward trend and appear to support riparian habitat that is at least adequate to provide for the needs of dependant special status animals. One spring is Functional-At Risk and only marginally meets some of the needs of dependant special status animals.

General Upland Habitat Assessment

Most of the allotment is near reference conditions. The functional and structural groups are generally close to what is expected for the sites and are likely to be providing habitat that is marginally adequate for the needs of most dependant special status and other wildlife species. Juniper encroachment is a serious factor contributing to the slight to moderate deviations from reference conditions. The localized lack of large bunchgrasses, reduced shrub cover and increase juniper is limiting cover structure and forage for sage grouse, numerous song birds, pygmy rabbits and others including a diversity of insects, rodents, birds that are critical prey for most raptors including prairie falcons, northern harriers and ferruginous hawks. While mature stands of western juniper provide high quality habitat for a large diversity of birds, bats and other species; increasing dense stands of young juniper have been shown to support a reduced diversity and abundance of birds (Sauder 2002).

This allotment includes mule deer, elk, and antelope spring/summer/fall habitat (1999 Owyhee RMP). With the exception of western juniper encroachment and the common presence of cheatgrass within the upland plant communities, rangeland health conditions are adequately providing adequate big game habitats.

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General Upland Habitat Assessment

Several upland habitats and cover types occur within a variety of ecological sites within pastures 1, 3, 4, 5, and 6 (Tables WDLF-4 through 8).

Table WDLF-4: NRCS Ecological Sites[1] within Lone Tree allotment pasture 1

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	40	40
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	5	52
		Shallow Claypan 12-16 ARAR8/FEID	47	

[1]Approximately 8.0 percent of the pasture is classified as an unknown/no data. Other Ecological Sites <0.1 percent of the pasture includes Dry Meadow PONE3-PHAL2.

Table WDLF-5: NRCS Ecological Sites[1] within Lone Tree allotment pasture 3

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	79	79
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	15	19
		Shallow Claypan 12-16 ARAR8/FEID	4	

[1]Approximately 1 percent of the pasture is classified as an unknown/no data. Other Ecological Sites <0.1 percent of the pasture includes Dry Meadow PONE3-PHAL2.

Table WDLF-6: NRCS Ecological Sites[1] within Lone Tree allotment pasture 4

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	74	74
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	5	12
		Shallow Claypan 12-16 ARAR8/FEID	7	

[1]Approximately 13 percent of the pasture is classified as an unknown/no data.

Table WDLF-7: NRCS Ecological Sites[1] within Lone Tree allotment pasture 5

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Grassland	Grasslands	Dry Meadow PONE3-PHAL2	2	2
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	92	92
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	5	5

[1]Approximately 1 percent of the pasture is classified as an unknown/no data.

Table WDLF-8: NRCS Ecological Sites[1] within Lone Tree allotment pasture 6

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	82	82
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	13	13

[1]Approximately 5 percent of the pasture is classified as an unknown/no data.

In general, many indicators of upland rangeland health were near reference conditions (see Standards 1 and 4). However, functional/structural groups in pasture 1 displayed a consistent moderate departure from ecological site reference conditions. All pastures were substantially affected by conversion to juniper woodlands and uniformly exhibited a moderate-to-extreme (and in pastures 5 and 6, extreme) departure from ecological site reference conditions. In contrast to the conclusions of the 2006 assessment, the conversion of shrub steppe habitats to juniper woodlands is affecting habitat suitability for most obligate and dependent wildlife and is probably not providing adequate habitat conditions for these species.

Sage Grouse

The allotment contains key habitat and unclassified habitat that is considered to be unsuitable for sage grouse. Juniper encroachment is adversely affecting grouse habitat. Two breeding habitat assessments were conducted in 2004. No active leks (breeding grounds) are within the allotment however active leks are in the vicinity. Site A (8S3W2 NW, NW) is a juniper area cover type; western juniper/low sagebrush/Idaho fescue. Mountain big sagebrush occurs in pockets in shallow drainage areas. Idaho fescue, the dominate grass, had a 20 to 25 percent cover and was two to four inches high. Grass cover in shrub interspaces was poor for large ground nesting birds. Forb abundance was sparse and diversity low. Overall, the site was unsuitable habitat for sage grouse breeding. Site B (7S3W27 SE, SE) is primarily a western juniper woodland. Low sagebrush was the dominate shrub, Idaho fescue was the dominate grass, and averaged two to four inches in height. There was poor forb diversity and abundance. Overall, the site was rated as marginal habitat.

Table A8-1: Sage Grouse Breeding Habitat Assessment, Lone Tree Allotment, 2004

Habitat Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Average Sagebrush Canopy Cover*		B	
Average Sagebrush Height		B	A
Sagebrush Growth Form	A	B	
Average Grass and Forb Height			A,B
Average Perennial Grass Canopy Cover	A,B		
Average Forb Canopy Cover		A,B	
Preferred Forb Abundance and Diversity*			
Overall Site Evaluation		**B**	**A**

* no entry on field form

Focal Special Status Species

Greater sage-grouse

Habitat Characteristics

Habitat Assessments

The allotment is outside of all breeding, summer, and winter seasonal ranges of the Owyhee Front/Triangle local population (Map WDLF-6). At best, the allotment is at the periphery of the local population's breeding and upland summer range. Although the dominant mountain big sagebrush and low sagebrush ecological sites could typically support breeding (including early brood-rearing), upland summer (including late-brood rearing), dense juniper woodlands currently have invaded the majority of the allotment thoroughly and reduced the amount and diminished the quality of breeding, brood-rearing/summer riparian, and upland summer habitats in particular. The allotment (pastures 1 and 4) contains key habitat, but the majority of the allotment is classified as conifer encroachment areas (Maps WDLF-4 and WDLF-5A; also see discussion above).

Pasture 4 is not within the breeding, upland summer, or winter seasonal ranges of the Owyhee Front/Triangle local population. Although a restricted area in the northwest corner of pasture 4 provides relatively open shrub steppe habitat (i.e., low sagebrush), the dominant habitat within the pasture is juniper woodland. There are no lentic sites in the BLM portion of pasture 4, and the only perennial stream (i.e., Rose Creek) is located in a heavily wooded, deep, narrow canyon which is unsuitable for early or late brood rearing, or summer riparian habitat.

Sage-grouse habitat does not occur within pastures 3, 5, and 6. These pastures are dominated by juniper woodlands and do not have PPH, PGH, key habitat, or any other classification of sage-grouse habitat (Maps WDLF-3 and WDLF-4). These pastures are considered non-habitat.

Breeding Habitat

For the most part, the 2006 assessment conclusions regarding sage-grouse breeding habitat remain valid.

Upland Summer Habitat

Two SG HAs were used to assess upland summer habitat conditions within pasture 1 (Map WDLF-5A). Both SG HAs were located within the Shallow Claypan 12-16" ARAR8/FEID Ecological Site and both were conducted in 2004. Upland summer habitat conditions within pasture 1 are provisionally rated as Marginal primarily due to the lack of preferred forb diversity and abundance, the short stature of sagebrush, and the extent of the conversion to juniper woodlands.

With the exception of mountain big sagebrush inclusions, the dominant low sagebrush site constitutes the majority of usable sage-grouse habitat (based on cover types/ecological sites) within the pasture (approximately 52 percent of shrub steppe acres; see Table WDLF-4 above), and therefore the present results are generally representative of the conditions that predominate within pasture 1.

- **07S03W27-2004** and **08S03W02-2004 (R025XY010ID)**
  Marginal (*provisionally*). Although assessment was not conducted at the appropriate time of year, some of the most important primary indicators for suitable upland summer habitat fall within the unsuitable ranges (forb CC, diversity, and abundance) (Table WDLF-9). It is unlikely that forbs would be more abundant in the summer as soil moisture is depleted further. Although CC of sagebrush and perennial grass appears to be adequate, indicating a vegetation community within the reference State and Phase (which the major exception of JUOC encroachment in the surrounding area), vertical concealment cover is marginal due to marginal sagebrush and unsuitable perennial herbaceous understory heights. Despite the survey timing, most components appear to be providing marginal upland summer habitat conditions at best.

Table WDLF-9: Summary of upland summer SG HAs[1] in pasture 1 of Lone Tree allotment (2004)

Habitat Indicator	**Ecological Sites[2]**
	R025XY010ID-2004
	n=2
Sagebrush Canopy Cover (%)	19 (S)
Sagebrush Height (cm)	24.6 (M)
Grass and Forb Canopy Cover (%)	23 (S)
Preferred Forb Availability	5 spp./sparse (U)
Overall Site Evaluation[3]	**Marginal***

[1]Individual habitat indicator suitability ranges are given in parentheses and include Suitable (S), Marginal (M), and Unsuitable (U).
[2]Ecological sites include Shallow Claypan 12-16" ARAR8/FEID (R025XY010ID).
[3]Provisional ratings are designated by an asterisk.

Redband trout

Pasture 1
Redband trout are known to occupy Rock Creek in the northeast corner of Pasture 1. The Proper Functioning Condition assessment placed this 0.9 mile segment as Functional-At Risk with a static trend. BLM data, 2002, indicates water temperature is not meeting cold water aquatic life (CWAL) and salmonid spawning (SS) criteria.

Pastures 2 and 4
Redband trout are known to occupy Rose Creek in the north-west corner of Pasture 2 and along the east side of Pasture 4. The segment in Pasture 2 is Functional-At Risk with an upward trend. Water temperatures exceed criteria for CWAL and SS. The segment in Pasture 4 is Functional-At Risk, static, in a 2000 assessment.

Pastures 3 and 6
Redband trout are known to occupy Wickiup Creek in the southeast corner of Pasture 3. Wickiup Creek was classified in 2000 as Functional-At Risk with an upward trend. This 0.7-mile reach is a shared boundary with Pasture 6. There is an additional 1.1 miles in Pasture 6 that

was classified in 2000 as Functional at Risk with an upward trend. The BLM temperature data from 2001 meets criteria for CWAL.

In summary, four PFC assessments were PFC or FAR with an upward trend. Three are of concern since they are FAR with a static trend. There are no Nonfunctional assessments or downward trends.

Table A8-3: Redband trout occupied Creeks

Pasture	Length/Miles	Creek	PFC/trend	CWAL	SS
1	0.7	Rock	F-AR static	Not meeting	Not meeting
1&2	1.2	Josephine	F-AR static	Meeting	Not meeting
	1.5	Josephine	PFC	---*	---*
2	0.6	Rose	F-AR upward	Not meeting	Not meeting
4	1.1	Rose	F-AR static	---*	---*
3&6	0.7	Wickiup	F-AR upward	Meeting	---*
6	0.7	Wickiup	F-AR upward	Meeting	---*

* not measured

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Redband Trout

In 2011, a draft assessment of redband trout habitats and riparian condition in the Owyhee Basin of Nevada, Idaho, and Oregon was produced with support from Nevada BLM (Fesenmeyer, Mayfield, Haak, & Shives, 2011). The basin-wide habitat condition assessment uses a Conservation Success Index (CSI), which provides an analytical tool focused on cold-water conservation planning at the sub-watershed scale (6^{th} level HUC; (Williams, Haak, Gillespie, & Colyer, 2007), (Trout Unlimited, 2009)). The CSI summarizes data for species-specific analyses related to population metrics, anthropogenic stressors, and environmental conditions, and assigns a categorical score (1-5, reflecting poor through exceptional condition) based on a suite of indicators.

As stated in the 2006 RHA above, redband trout occur within several streams that cross the allotment (Map WDLF-7).

A review of the preliminary results indicates that the sub-watersheds that intersect the majority of the allotment (Josephine Creek and Lower Rock Creek) have high total population and habitat integrity scores and a moderately high total CSI score (Fesenmeyer, Mayfield, Haak, & Shives, 2011). Future security indicators (factors related to land conversion, resource extraction, energy development, climate changes, sedimentation, and introduced species) that negatively affected the total CSI score can be identified to develop management actions to increase the probability of redband trout persistence within the allotment.

Other Species

Columbia spotted frog occupied habitat discovered during recent survey.

Columbia Spotted Frog

Targeted surveys for spotted frogs in the Lone Tree allotment were conducted in 1994, 2007, and 2011.

Pastures 1 and 2

In 2007, surveys were conducted on BLM lands along Long Valley Creek and a tributary to Rock Creek (three sites each); no spotted frogs were detected. In 2011, surveys were conducted on private lands along Josephine Creek (one site); no spotted frogs were detected.

Pastures 3 and 6

In 1994, surveys were conducted on BLM and state lands along Wickiup Creek (two sites and one site, respectively); no spotted frogs were detected.

Pasture 4

In 2011, surveys were conducted on state lands along Rose Creek (one site); no spotted frogs were detected.

Pasture 5

In 2011, surveys were conducted on state lands at lentic and lotic sites associated with a tributary to Rose Creek (two sites and one site, respectively); no spotted frogs were detected. Larvae (tadpoles) were detected during surveys in 2011 on state lands at a lentic site associated with a tributary to Wickiup Creek.

With the exception of one breeding site, the majority of survey efforts within the allotment did not detect occupied spotted frog habitat. However, spotted frogs are known to occupy the three sub-watersheds (6^{th} level HUC) that intersect Lone Tree pastures (Lower Rock Creek, Middle Rock Creek, Josephine Creek; Map WDLF-7).

Although riparian habitats in this allotment are in various states of functionality, lentic, and to a lesser extent, lotic riparian systems in general appear to support riparian habitat that is at least minimally adequate to provide for the needs of spotted frogs.

B. Louisa Creek Allotment (0601)

The Louisa Creek Allotment is divided into 5 pastures that are geographically separated into two separate locations. The allotment is located approximately 35 miles south of Murphy, Idaho in Owyhee County. Elevations range between 5,100 and 6,500 feet. The major landforms in the areas are foothills, tablelands, and structural benches, with slopes varying from 2 to 35 percent. The general area is undulating to steep with clayey and loamy, well drained, cool, shallow and moderately deep soils. The soils formed in residuum and alluvium derived from welded rhyolitic tuff, breccia, and basalt. In 1994 a prescribed fire escaped and burned approximately one-half of Pastures 1, and 2.

The annual precipitation range is 13 to 18 inches and the frost-free period is 60 to 95 days. Vegetative production is limited by depth to hardpan, depth to bedrock, low available water capacity, restricted permeability, slope, stones on surface and short frost-free period. On deeper loamy soils, mountain big sagebrush, bluebunch wheatgrass, Idaho fescue, and western juniper are common. On the shallow clay soils, low sagebrush and Idaho fescue are common.

Table B-1: Land status (in acres)*

Pasture	Public	State	Private	Total
1	2,109	1	<1	**2,110**
2	2,661	0	<1	**2,662**
3	3,038	0	32	**3,070**
4	1,091	0	40	**1,131**
5	1,011	0	607	**1,618**
Total	**9,910**	**1**	**680**	**10,591**

*numbers are best available estimates

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Table ALLOT-2: Louisa Creek allotment land status acreages by pasture*

Pasture	Public	State	Private	Total
1	2,109	0	1	2,110
2	2,661	0	1	2,662
3	3,038	0	32	3,070
4	1,091	0	40	1,131
5	1,011	0	607	1,618
Total	9,911	0	680	10,591

*****Acreages are based on 2013 GIS data (differences from 2006 data can be attributed to rounding errors)

Livestock Grazing Management

In the Owyhee Resource Management Plan (1999) Table LVST-1, the Louisa Creek Allotment was identified as an 'Improve' allotment with medium priority. Allotments in the selective management 'Improve' category are managed with adequate expenditures of funding and manpower to improve current unsatisfactory resource conditions.

Livestock use is allocated at 1,868 animal unit months (AUMs) for cattle. Livestock grazing is authorized through a term grazing permit, currently issued to John Steiner. Each year the permit authorizes the following livestock use on the Louisa Creek Allotment:

Table B-2: Permitted Livestock Use

Operator Name & No.	Livestock Kind & No.	Season of Use	Public Land	AUMs		
				Active	Suspended	Permitted
John Steiner (1101475)	321 Cattle	5/1 to 10/31	96 %	1,868	654	2,522

Use in Pastures 1, 2, and 3 are rotated, and Pastures 4 and 5 are scheduled for use concurrently. Table B-2 displays the dates the pastures were used between 1994 and 2002 based on available records.

Table B-2: Pasture Use Periods by Year

Pasture	1994	1995	1996	1997	1998	1999	2000	2001	2002
1	5/1 6/15	Rest	10/2 10/31	8/7 9/25	8/18 10/29	5/22 7/15	9/30 10/30	5/16 6/15	10/26 11/9
2	Rest	Rest	10/2 10/31	8/7 9/25	8/18 10/29	8/27 10/24	5/22 6/22	10/1 10/30	5/15 6/31
3	10/1 10/31	6/16 9/30	6/16 9/30	NA	5/11 6/29	Rest	Rest	6/15 7/15	Rest
4 & 5	6/16 9/30	6/16 9/30	6/16 9/30	6/19 8/6	6/30 8/17	7/16 9/30	6/23 9/21	7/16 9/30	7/15 9/29

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Table LVST-3: Periods of use from actual use reports, 2006 through 2012

Pasture	2006	2007	2008	2009	2010	2011	2012
1	10/8 10/30	5/2 7/6			10/2 10/30	5/1 6/30	5/1-6/25
2	5/10 6/30	10/15 11/8			5/23 7/1	10/3 10/30	10/1- 10/30
3	7/5 9/30				7/7 9/27	7/7 9/27	7/1-9/30
4		7/16 9/30					
5							

No actual use reports are on file for grazing use that occurred between 2003 and 2005. Additionally, no actual use reports are on file for grazing use that occurred in 2008 or 2009. Finally, no actual use was report for grazing use in pasture 3 in 2007.

Table B-3 displays data in actual use records provided by the grazing permittee.

Table B-3: Reported Actual Use in AUMs

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Use	1197	1776	1233	1484	1457	*	1221	*	*	*

* Actual Use Reports not submitted for grazing years 1990-1995; 2001; and 2003-2005.

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Table LVST-4: Louisa Creek allotment actual use AUMs, 2006 through 2012

Year	2006	2007	2008	2009	2010	2011	2012
AUMs	1623	1426			1440	1719	

See notes under Table LVST-3 for reported actual use.

Rangeland Health Standards Assessment

1. Standard: Watersheds

Ten rangeland health evaluation worksheets were completed in the Louisa Creek Allotment during 2001. The evaluations were conducted in accordance with the procedure described in Bureau of Land Management (BLM)-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health- Version 3" (Appendix B). Table B1-1 summarizes indicator ratings by pasture, Appendix E contains the individual indicator ratings by location, and the allotment map shows the locations represented by the worksheets.

Table B1-1: Indicators of Rangeland Health

Standard 1-Watersheds	Degree of Departure				
	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[*1]	22	2	0	0	0
Pasture 2[*2]	22	2	0	0	0
Pasture 3[*3]	23	5	5	1	2
Pasture 4*[4]	17	5	2	0	0
Pasture 5 *[5]	11	0	1	0	0

[*1]- summarizes; 2 Shallow Claypan 12-16" ecological sites
[*2]- summarizes; 2 Shallow Claypan 12-16" ecological sites
[*3]- summarizes 1 Loamy 13-16", and 1 Shallow Claypan 12-16", and 1 Very Shallow Stony Loam 10-14" ecological sites
[*4]- summarizes 1 Loamy 13-16", and 1 Very Shallow Stony Loam 10-14" ecological site
[*5]-summarizes: 1 Loamy 13-16" ecological site

Pasture 1

RH1A (T7S R2W Sec21) represents a Shallow Claypan 12-16" ecological site with inclusions of a Loamy ecological site in the northwestern portion of the pasture. At this site, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

RH1B (T7S R2W Sec20) represents a Shallow Claypan 12-16" ecological site in the north-central portion of the pasture. At this location, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight range of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

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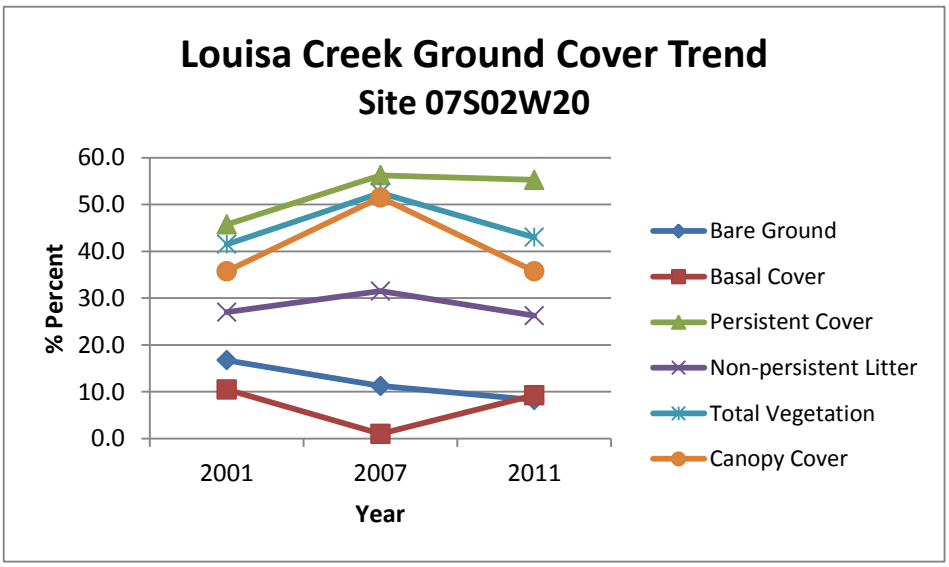
Ground Cover Trend

Ground cover trend data were collected at the nested plot frequency transect (07S02W20) in 2001, 2007, and 2011 (Figure Soil-2). Bare ground showed a non-significant decrease over the short term and a long term reduction, which is the only significant (students T-test; p-value <0.1) value for this site. The remaining trend of basal vegetation, non-persistent litter, total vegetation, and canopy cover long-term values are primarily static with some showing a decline over the short term, reflecting little change between 2001 and 2011. Persistent cover also suggests little change due to static short-term and a slight non-significant increase over the long term.

Figure Soil-2: Ground cover data from trend site 07S02W20 for the Louisa Creek allotment (2001, 2007, and 2011)



After short-term improvements between 2001 and 2007 for most values, the site reflects a long-term static trend between 2001 and 2011 with the exception of an increase in persistent cover. Above normal precipitation between 2006 and 2007 may have influenced the elevated readings as cover from vegetation and associated litter improved; however, contrary to the increase in ground cover in 2007, grass frequency (see Standard 4) does not provide any further insights on the 2007 spike. Similarly, the increase in canopy cover does not correspond with declining low sagebrush levels recorded for shrub density (see Standard 4) though deep-rooted perennial bunchgrasses are present at satisfactory levels. It is also possible that these differences are due to discrepancies in how ground cover was monitored and recorded. Inconsistencies have been observed for 2006 and 2007 data here and for other allotments and, in some cases, resulted in exclusion of data, especially basal cover and total vegetation.

Bare ground has steadily improved and remains well below the range of 40 to 50 percent for

Shallow Claypan 12-16" ecological sites. This holds true despite the short-term decrease in several of the ground cover values from 2007 to 2011. Overall interpretations of trend data suggest that ground cover conditions reflect a long-term static trend. Though the recent decline in most values is noted and could be interpreted as a downward trend, the satisfactory presence of deep-rooted perennial bunchgrasses and the low occurrence and decline of bare ground suggests that the site is maintaining. This is also reflected in the two qualitative assessments taken within the pasture.

Pasture 2

RH2A (T7S R2W Sec28) represents a Shallow Claypan 12-16" ecological site with inclusions of Loamy 13-16" ecological site in the central portion of the pasture. At this location, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

RH2B (T7S R2W Sec34) represents a Shallow Claypan 12-15" ecological site in the southern portion of the pasture. At this location, all rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

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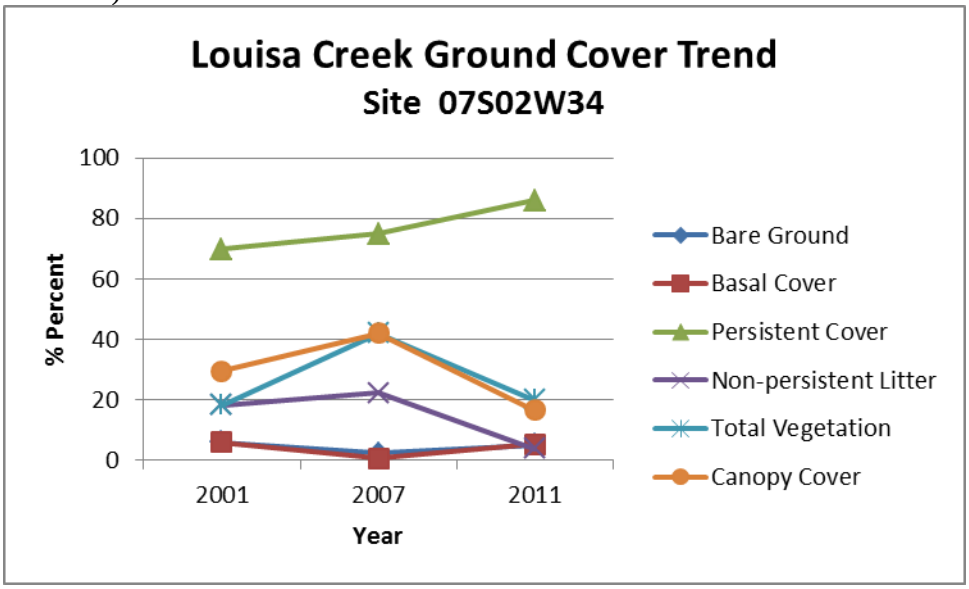
Ground Cover Trend

Ground cover trend data were collected at the nested plot frequency transect (07S02W34) in 2001, 2007, and 2011 (Figure Soil-3). Bare ground and basal vegetation slightly increased over the short-term and otherwise remained static long-term. A significant (students T-test; p-value <0.1) increase in persistent cover was detected both long and short term, while remaining values of non-persistent litter, total vegetation, and canopy cover significantly declined over the short term and long term with the exception of total vegetation, which reflects no long-term change between 2001 and 2011 after it increased in 2007.

Figure Soil-3: Ground Cover data from trend site 07S02W34 for the Louisa Creek allotment (2001, 2007, and 2011)



While the ground cover trend at this site is similar to the trend observed in pasture 1 by showing some short-term improvements between 2001 and 2007 for most values, the site reflects a long-term static to slight downward trend between 2001 and 2011, with the exception of an increase in persistent cover. This marginally correlates with a decrease in low sagebrush density but is not reflected in grass frequency trend (see Standard 4). A decrease in low sagebrush may have also contributed to a decline in non-persistent litter.

Bare ground levels are very low and have remained relatively static, which correlates with the qualitative rangeland health assessment that indicates few impacts except an increase in western juniper. However, the photographs do not reflect moderate levels of juniper but show tree cover to be dense and present in the distance. Over the long term, conditions have generally maintained at this site but indicate a slight downward trend that is not reflected in the qualitative data.

Pasture 3

RH3A (T8S R2W Sec6) represents a Very Shallow Stony Loam 10-14" ecological site in the north-central portion of the pasture. The indicators for water flow paths and pedestals and terracettes rated in the extreme range of departure from expected conditions for this ecological site. Water flow paths were long and inter-connected, disrupted by rock and boulders. Plant pedestals were pronounced, and terracettes were common throughout the site. The indicator for soil loss or degradation rated in the moderate range of departure and was associated with water flow paths, and pedestals and terracettes.

RH3B (T8S R2W Sec7) represents a Loamy 13-16" ecological site in the west-central portion of the pasture. At this location, the indicator for water flow paths rated in the moderate range of departure from expected conditions. Water flow paths were long, sporadically connected, and somewhat channeled. Other rangeland health indicators relating to soil stability and hydrologic

function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

RH3C (T8S R2W Sec8) represents a Shallow Claypan 12-16" ecological site in the southeastern portion of the pasture. The indicator for plant community composition and distribution relative to infiltration and runoff rated in the moderate-to-extreme range of departure. This rating was attributed to the dominance of Western juniper in the plant community and the resulting loss of low sagebrush and bluebunch wheatgrass. The indicators for water flow paths, pedestals and terracettes, and soil surface loss or degradation rated in the moderate range of departure. Water flow paths were long and interconnected in interspatial areas. Plant pedestals were numerous and associated with flow paths. Many pedestals and terracettes were historic, with biological crusts on exposed surfaces. Soil surface loss was associated with flow paths and pedestals.

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Ground Cover Trend

Ground cover trend data were collected in pasture 3 at two nested plot frequency transects (08S03W01 and 08S02W08) in 2001, 2007, and 2011 (Figures Soil-4 and Soil-5). Bare ground showed a significant (students T-test; p-value <0.1) decline over the long term, while short-term values were variable. Basal vegetation increased over the short term but remains static between 2001 and 2011. At both sites, a primarily significant increase in persistent cover was observed both short and long term, while all remaining cover and vegetation values showed a mostly significant decline, especially over the short term.

Figure Soil-4: Ground Cover data from trend site 08S03W01 the Louisa Creek allotment (2001, 2007, and 2011)

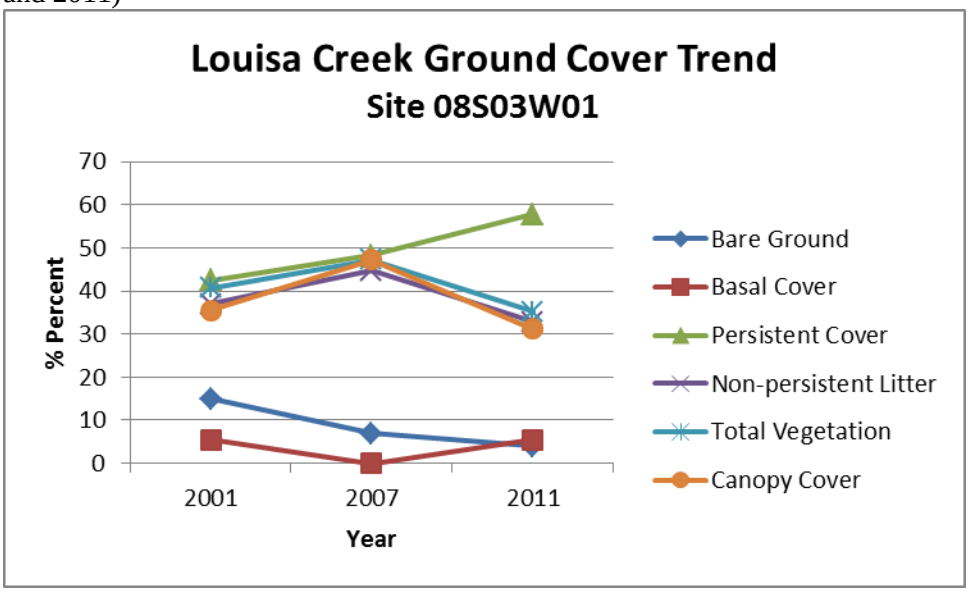
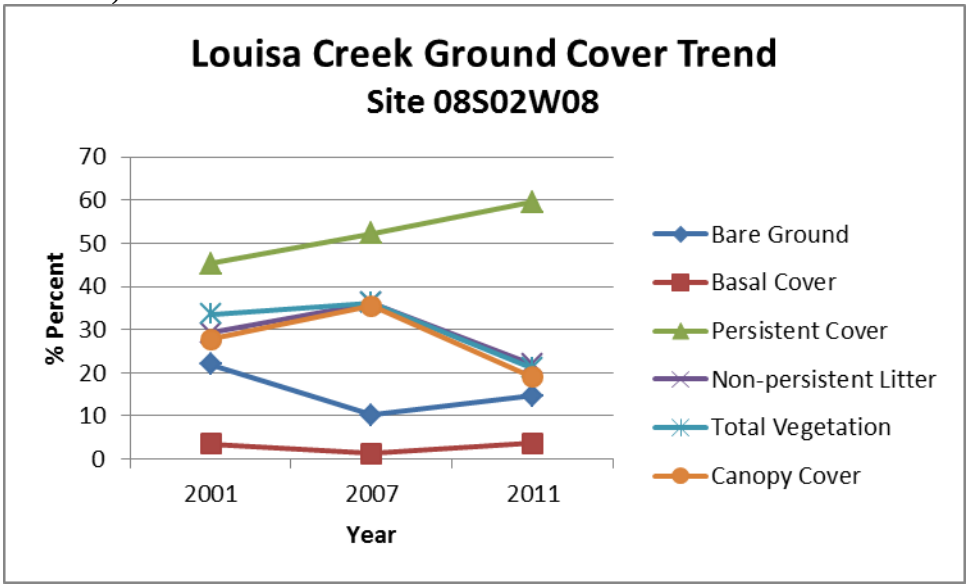


Figure Soil-5: Ground Cover data from trend site 08S02W08 the Louisa Creek allotment (2001, 2007, and 2011)



Both sites show short-term improvements between 2001 and 2007 for most values, which change to a primarily downward trend from 2007 and 2011. This marginally correlates to declining grass frequency trend and a sharp decrease in low sagebrush density (see Standard 4). Bare ground levels have decreased at one site but are increasing over the most recent years for site 08S02W08 that also displays impaired conditions in the rangeland health assessment. Over the long term, ground cover shows a static to downward trend while a decrease in biotic integrity can be linked to juniper encroachment, a decline in sagebrush, and an underrepresentation of deep-rooted bunchgrasses. Juniper encroachment, based on 2011 NAIP imagery, is pasture-wide.

Pasture 4

RH4A (T8S R2W Sec21) represents a Loamy 13-16" ecological site in the northern portion of the pasture. At this location the indicator for soil surface loss or degradation rated in the moderate range of departure from expected conditions for this ecological site and was evidenced by plant pedestaling and terracettes. Other rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

RH4B (T8S R2W Sec28) represents a Very Stony Shallow Loam 10-14" ecological site in the southern portion of the pasture. At this location the indicator for plant community composition and distribution rated in the moderate range of departure. This rating was attributed to the common occurrence of Western juniper and fewer large bunchgrasses in the interspaces than would be expected. Other rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

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The two rangeland health assessments completed within this pasture concludes that the overall departure of soil stability and hydrologic function from reference site conditions is slight-to-moderate; however, a moderate rating regarding infiltration and runoff indicates an imbalance due to heavy presence of juniper at the site. 2011 NAIP imagery shows that the dominance by juniper is pasture-wide, indicating a decline in watershed function based on a departure from potential biotic reference site conditions.

Pasture 5

RH5A (T8S R2W Sec28) represents a Loamy 13-16" ecological site in the northern portion of the pasture. The indicator for plant community composition and distribution relative to infiltration and runoff rated in the moderate range of departure due to the common occurrence of Western juniper and Sandberg bluegrass as the dominant herbaceous species. Other rangeland health indicators relating to soil stability and hydrologic function rated in the none-to-slight or slight-to-moderate ranges of departure for this ecological site, which are within the acceptable variation of conditions for this ecological site.

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The one rangeland health assessment completed within this pasture concludes that the overall departure of soil stability and hydrologic function from reference site conditions is none-to-slight; however, a moderate rating regarding infiltration and runoff indicates an imbalance due to heavy presence of juniper at the site. 2011 NAIP imagery shows that the dominance by juniper is pasture-wide, indicating a decline in watershed function based on a departure from potential biotic reference site conditions.

2. Standard: Riparian Areas and Wetlands

There are three creeks and twelve springs located throughout Louisa Creek Allotment. The streams include North Fork Castle Creek, Rock Creek, and Louisa Creek.

The Owyhee Resource Management Plan (1999) in Table RIPN-1 identified 2.67 miles of Louisa Creek in this allotment with unsatisfactory riparian condition. Additionally, North Fork Castle Creek was identified as having 0.21 miles of unsatisfactory riparian condition. Inventories and assessments were conducted by the BLM in 2000 and 2001.

North Fork Castle Creek

Approximately 1.2 miles of North Fork Castle Creek runs on public lands along the northeast boundary of Pasture 1.

North Fork Castle Creek was inventoried in May 2000 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The stream segment in Pasture 1 was rated Functional-At Risk high with an upward trend. The assessment identified the stream segment as a Whiplash Willow Community Type. Whiplash willow is a pioneer species often found on

newly deposited alluvial materials (Hansen, 1995). Whitetop, a noxious weed in Idaho, was present on 15 to 25 percent of the segment.

Table B2-2: Riparian Indicators and Functioning Condition Rating by Stream Segment

Riparian/Wetland Indicators:	**NFC-004**
Stream miles	1.21
Date of data collection	5/2000
Diverse age class/structure of hydric vegetation (6)	Y
Diverse composition of hydric vegetation (7)	Y
Vegetation reflects maintenance of soil moisture (8)	Y
Plant community comprised of bank stabilizing species (9)	Y
Hydric vegetation exhibits high vigor (10)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Point bars revegetating with hydric species (14)	Y
Noxious weeds are present (24a)	1/
Overall functioning condition	**FAR+**
Apparent trend	UP
Pasture	1

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- 1/ Whitetop is located on 15-25% if the segment.

Livestock use

Stubble heights were measured in 1999 and again in 2000. The recommended 4-inch stubble height was met both years. Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective stream bank, protection, prevention of sedimentation, and maintenance of plant communities. (USDI, BLM 1999)

Table B2-3: Riparian Zone Monitoring - North Fork Castle Creek

Location	**Pasture**	**Year**	**Inches**	**Shrub use**
NFC-004	1	5/2000	8	5-15 %
T7SR2WS15SWSE	1	9/1999	4	52 %

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During the 2013 permittee meetings regarding pasture 1 of the Louisa Creek allotment, it was discovered that the 1.2 mile reach of the North Fork Castle Creek that was assessed in 2000 is partially in an exclosure, partially in a steep canyon, and a short segment (0.15 mile) at the upstream end is an authorized water gap.

Rock Creek

Approximately 1.8 miles of Rock Creek runs along the southwest boundary of Pasture 2.

Rock Creek was inventoried in September 2001 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The assessment divided the stream into 2 segments, ROC-008 and ROC-009.

Segment ROC-008, the longer of the two segments, was classified as a Red-Osier Dogwood Community Type. This Community Type is often located on flat alluvial benches adjacent to moderate to high gradient steams (Hansen 1995). Segment ROC-008, was determined to be in Proper Functioning Condition.

Segment ROC-009 was classified as a Geyer Willow Community Type. The Geyer Willow Community type is often found on alluvial terraces adjacent to major rivers and streams, and near springs and seeps (Hansen, 1995). Whitetop, an Idaho noxious weed, was present on less than 1 percent of the segment. This segment was determined to be in high Functional-At Risk.

Table B2-4: Riparian Indicators and Functioning Condition Rating by Stream Segment

Riparian/Wetland Indicators:	**ROC-008**	**ROC-009**
Stream miles	1.19	0.57
Date of data collection	9/2001	9/2001
Diverse age class/structure of hydric vegetation (6)	Y/N	Y/N
Diverse composition of hydric vegetation (7)	Y	Y
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y
Adequate large woody material (12)	Y/N	Y/N
Point bars re-vegetating with hydric species (14)	Y/N	Y/N
Noxious weeds are present (24a)	N	1/
Overall functioning condition	**PFC**	**FAR+**
Apparent trend	NA	NA
Pasture	2	2

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified
- 1/ Whitetop on less than 1 percent of the segment

Livestock use

Riparian zone monitoring along Rock Creek generally reported at least a 4-inch stubble height. Stubble height measurements are a simple and effective tool to monitor rangeland use in key

areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective stream bank, protection, prevention of sedimentation, and maintenance of plant communities. (USDI, BLM 1999)

Table B2-5: Riparian Zone Monitoring - Rock Creek

Location	Pasture	Year	Inches	Shrub use
ROC-008	2	9/2001	4	5-15%
ROC-009	2	9/2001	3-6	15-35%
T8SR2WS4	2	6/1998	17	90%
T8SR2WS4SWNE	2	10/1998	4.25	NR
T8SR2WS4SWNE	2	8/1997	4.5	NR
T8SRR2WS4SWNE	2	9/1996	2.53	56

NR – Not recorded

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During the 2013 evaluation process, it was discovered that ROC008 should be ROC001 and ROC009 should be ROC002. However, the information presented above is correct for pasture 2 of the Louisa Creek allotment.

Louisa Creek

Louisa Creek flows through Pasture 3 for approximately 3 miles, and approximately 0.2-mile in Pasture 5.

Louisa Creek was inventoried in October 2001 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). It was separated into 2 segments LOA-001 and LOA-002. The assessment LOA-001 was classified as low Functional-At Risk and LOA-002 was classified as Functional-At Risk. Apparent trends for the 2 segments were not identified.

Segment LOA-001 was classified as a Geyer Willow Community Type. The Geyer Willow Community type is often found on alluvial terraces adjacent to major rivers and streams, and near springs and seeps (Hanson, 1995).

Segment LOA-002 was classified as a Whiplash Willow Community Type. Whiplash willow is a pioneer species often found on newly deposited alluvial materials (Hansen, 1995).

Table B2-6: Riparian Indicators and Functioning Condition Rating by Stream Segment

Riparian/Wetland Indicators:	**LOA-001**	**LOA-002**
Stream miles	1.26	1.81
Date of data collection	10/2001	10/2001
Diverse age class/structure of hydric vegetation (6)	Y/N	Y/N
Diverse composition of hydric vegetation (7)	Y/N	N
Vegetation reflects maintenance of soil moisture (8)	Y/N	Y/N
Plant community comprised of bank stabilizing species (9)	Y/N	Y/N
Hydric vegetation exhibits high vigor (10)	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N
Adequate large woody material (12)	Y/N	Y
Point bars revegetating with hydric species (14)	Y/N	Y/N
Noxious weeds are present (24a)	N	N
Overall functioning condition	**FAR-**	**FAR**
Apparent trend	NA	NA
Pasture	3	3

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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Based on current GIS mileage calculations, LOA001 is 1.0 mile and LOA002 is 1.6 miles. Therefore, a total of 2.6 miles of Louisa Creek that traverse pasture 3 have been assessed.

Livestock use

Riparian zone monitoring for Louisa Creek was consistently measured at less than a 4-inch stubble height. Stubble height measurements are a simple and effective tool to monitor rangeland use in key areas. Individual plant measurements are collected from herbaceous vegetation such as grasses, sedges, and rushes. Generally stubble heights of 4 to 6 inches are an acceptable standard for effective streambank, protection, prevention of sedimentation, and maintenance of plant communities. (USDI, BLM 1999)

Table B2-7: Riparian Zone Monitoring - Louisa Creek

Location	**Pasture**	**Year**	**Inches**	**Shrub use**
LOA-001	3	10/2001	2-4	15-35%
LOA-002	3	10/2001	2-3	15-35%
T7SR2WS31NESE	3	9/1999	4	Severe
T7SR2WS31SE	3	10/1998	2.25	87%
T7SR2WS31SE	3	10/1997	3	*

* Browse use was not documented

Spring Related Riparian Resources

In 2004, Proper Functioning Condition Assessments were conducted on two springs in the Louisa Creek Allotment. There are 10 additional known springs on public land in the allotment that were not assessed for Proper Functioning Condition.

Table B2-8: Spring Evaluation

Spring	Location	Pasture	Functional Rating	Trend	Riparian/Wetland Livestock Impacts
Antelope Spring	T7SR2WS28 SWNW	1	PFC	UP	Exclosure around riparian area.
Toy Seep	T7SR2WS33 SESE	2	NF	DN	Majority of available water is diverted to a trough for livestock management.

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In 2013, Antelope Spring was re-visited; photos and observations were made that differentiated conditions inside and outside the exclosure. The vegetation inside the exclosure was abundant and healthy. Outside the exclosure, a headcut was developing at outflow, the trampling was excessive, and there was heavy use in adjacent uplands.

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The table below is a summary of all of the riparian information currently available for the Louisa Creek allotment relative to Standard 2 (also see Map RNGE-1B).

Table RIPN-3: Riparian information for Standard 2 in the Louisa Creek allotment

	Allotment, Pasture Name, and Miles Assessed				
Stream Name	**Louisa Creek- 01**	**Louisa Creek - 02**	**Louisa Creek - 03**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
NF Castle Creek	1.2 (FARS- 2000/ exclosure- 2013)			2000- unstable beaver dams/ floodplain not inundated frequently 2013- ~50% in exclosure, ~40% in canyon, and ~10% is a water gap	
Rock Creek		0.6 (FARS- 2001)		areas of inadequate soil moisture/ lack of bank stabilizing species/ areas of lateral instability	0.6
		1.2 (PFC- 2000)			1.2
Louisa Creek			2.6 (FARS- 2000)	noxious weeds present/ areas of inadequate soil moisture to support rip veg and stable banks/ areas of lateral and vertical instability	2.6

Springs Assessed, Condition, & Issues Identified			
Spring Name	**Pasture/ Assessment Year**	**PFC Condition**	**Assessment Issues/ Impacts Identified**
Antelope Spring (inside exclosure)	1/2004 & 2013	PFC & photos	vegetation inside exclosure was abundant/ there were two non-functioning troughs inside

Antelope Spring (outside exclosure)	1/2013	photos and notes	headcut developing at outflow/ trampling excessive/ heavy use in adjacent uplands
Toy Seep	2/2004	NF	majority of available water is diverted to a trough for livestock management

3. Standard: Stream Channel/Floodplain

There are three streams in the Louisa Creek Allotment; North Fork Castle Creek, Rock Creek, and Louisa Creek. Inventories and assessments were conducted by the BLM in 2000 and 2001. Table B2-1 provides a summary of the latest Proper Functioning Condition of streams in the allotment.

North Fork Castle Creek

Approximately 1.2 miles of North Fork Castle Creek crosses public land along the northeast boundary of Pasture 1.

North Fork Castle Creek was inventoried in October 2000 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The stream segment in Pasture 1 was rated Functional-At Risk high with an upward trend.

Thirty-five to forty-five percent of the stream segment was classified as Rosgen B4. The B4 stream types are moderately entrenched systems with gradients of 2-4 percent. They are considered relatively stable and are not high sediment supply stream channels. The assessment reported sixty-five to eighty-four percent of the reach had plants with deep binding root masses. Sixty five to eighty percent of the stream banks were stable, and active bank erosion was occurring on only 1-5 percent.

Table B3-1: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – North Fork Castle Creek

Stream Channel/Flood Plain Indicator	NFC-004
Date of data collection	5/00
Floodplain inundated frequently (1)	Y/N
Beaver dams are active and stable (2)	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	N
Upland watershed not contributing to riparian degradation (5)	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y
Adequate large woody material (12)	Y
Floodplain and channel characteristics dissipate energy (13)	Y
Point bars re-vegetating with hydric species (14)	Y
Lateral stream movement associated with natural sinuosity (15)	Y
System is vertically stable (16)	Y
No excessive erosion or deposition (17)	Y
Overall functioning condition*	FAR+

Stream Channel/Flood Plain Indicator	NFC-004
Apparent trend	UP
Stream miles	1.21

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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During the 2013 permittee meetings regarding pasture 1 of the Louisa Creek allotment, it was discovered that the 1.2 mile reach of the North Fork Castle Creek that was assessed in 2000 is partially in an exclosure, partially in a steep canyon, and a short segment (0.15 mile) at the upstream end is an authorized water gap.

Rock Creek

Approximately 1.8 miles of Rock Creek runs along the southwest boundary of Pasture 2.

Rock Creek was inventoried in September 2001 following the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). The assessment divided the stream into two segments, ROC-008 and ROC-009.

Segment ROC-008, the longer of the two segments, was assessed to be in Proper Functioning Condition. It was classified as a Rosgen F2. Rosgen F2 streams are entrenched, meandering, high width/depth ratio channels that are structurally controlled with boulder materials. These systems are considered very stable stream types due to the resistant nature of their channel materials. The condition assessment found deep binding root mass plants on 65-84 percent of the segment, and stable stream banks on 80-100 percent of the segment with no active bank erosion.

Segment ROC-009 was rated as high Functional-At Risk. Thirty five to forty five percent of the segment was classified as a Rosgen B6c stream type. The B6c stream types are moderately entrenched systems that are incised in cohesive materials with channel slopes of less than two percent. The B6 streams are generally stable due to the effects of moderate entrenchment and lower width/depth ratios. They are characteristically low sediment supply and infrequent occurrence of sediment deposition (Rosgen 1996). The assessment found deep binding root mass plants on 35-64 percent of the segment. Sixty to eighty percent of the stream banks were stable. One to five percent of the stream banks had active erosion.

Table B3-2: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Rock Creek

Stream Channel/Flood Plain Indicator	ROC-008	ROC-009
Date of data collection	9/01	9/01
Floodplain inundated frequently (1)	Y	Y/N
Beaver dams are active and stable (2)	N	Y/N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y	Y/N
Upland watershed not contributing to riparian degradation (5)	Y	Y
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y	Y
Adequate large woody material (12)	Y/N	Y/N
Floodplain and channel characteristics dissipate energy (13)	Y	Y/N
Point bars re-vegetating with hydric species (14)	Y/N	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y	Y/N
System is vertically stable (16)	Y	Y
No excessive erosion or deposition (17)	Y	Y
Overall functioning condition	PFC	FAR+
Apparent trend	NA	NA
Stream miles	1.19	0.57

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

2013 Supplement to the Louisa Creek Rangeland Health Standards and Guidelines Assessment

During the 2013 evaluation process, it was discovered that ROC008 should be ROC001 and ROC009 should be ROC002. However, the information presented above is correct for pasture 2 of the Louisa Creek allotment.

Louisa Creek

Louisa Creek flows through Pasture 3 for approximately 3 miles and approximately 0.2-mile in Pasture 5. Louisa Creek was inventoried in October 2001 using the 1998 Owyhee and Bruneau Riparian Inventory Procedures (Appendix D). It was separated into 2 segments LOA-001 and LOA-002.

The assessment LOA-001 was classified as low Functional-At Risk and LOA-002 was classified as Functional-At Risk. Apparent trends for the 2 segments were not identified. Both segments were rated as Rosgen B4c streams. The B4c stream types are moderately entrenched systems with gradients of less than 2 percent. They are considered relatively stable and are not high sediment supply steam channels (Rosgen 1996). Both segments were similar in the percent of the bank with deep binding root mass plants, 35 to 64 percent. LOA-001 was higher in active

bank erosion. It had active bank erosion on five to 15 percent. Active bank erosion on LOA-002 was one to five percent.

Table B3-3: Stream Channel/Flood Plain Indicators and Functioning Condition Rating by Segment – Louisa Creek

Stream Channel/Flood Plain Indicator	LOA-001	LOA-002
Date of data collection	10/01	10/01
Floodplain inundated frequently (1)	Y/N	Y/N
Beaver dams are active and stable (2)	Y	N
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)	Y/N	Y/N
Upland watershed not contributing to riparian degradation (5)	Y/N	Y/N
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	Y/N	Y/N
Adequate large woody material (12)	Y/N	Y
Floodplain and channel characteristics dissipate energy (13)	Y/N	Y/N
Point bars revegetating with hydric species (14)	Y/N	Y/N
Lateral stream movement associated with natural sinuosity (15)	Y/N	Y/N
System is vertically stable (16)	Y/N	Y
No excessive erosion or deposition (17)	Y/N	Y/N
Overall functioning condition	FAR-	FAR
Apparent trend	NA	NA
Stream miles	1.26	1.81

- (Y=yes, N=no, Y/N =portions meet and portions do not meet)
- ( ) - item # on Function/Health Assessment
- PFC- Proper Functioning Condition, FAR- Functional-At Risk, NF- Nonfunctional (overall rating determined from examination of both riparian and channel/floodplain indicators)
- UP- Upward, DN- Downward, S- Static, NA- Not Apparent or identified

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Based on current GIS mileage calculations, LOA001 is 1.0 mile and LOA002 is 1.6 miles. Therefore, a total of 2.6 miles of Louisa Creek that traverse pasture 3 have been assessed.

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The table below is a summary of all of the riparian information currently available for the Louisa Creek allotment relative to Standard 3 (also see Map RNGE-1B).

Table RIPN-4: Riparian information for Standard 3 in the Louisa Creek allotment

	Allotment, Pasture Name, and Miles Assessed				
Stream Name	**Louisa Creek- 01**	**Louisa Creek - 02**	**Louisa Creek - 03**	**Assessment Issues/ Impacts Identified**	**Total Miles *Assessed***
NF Castle Creek	1.2 (FARS- 2000/ exclosure- 2013)			2000- unstable beaver dams/ floodplain not inundated frequently 2013- ~50% in exclosure, ~40% in canyon, and ~10% is a water gap	

Rock Creek		0.6 (FARS- 2001)		areas of inadequate soil moisture/ lack of bank stabilizing species/ areas of lateral instability	0.6
		1.2 (PFC- 2000)			1.2
Louisa Creek			2.6 (FARS- 2000)	noxious weeds present/ areas of inadequate soil moisture to support rip veg and stable banks/ areas of lateral and vertical instability	2.6

4. Standard: Native Plant Communities

Ten rangeland health evaluations were completed in the Louisa Creek Allotment in 2001. The evaluations were conducted in accordance with procedure described in Bureau of Land Management (BLM)-Technical Reference 1734-6, "Interpreting Indicators of Rangeland Health-Version 3". Table B4-1 summarizes the indicator ratings by pasture and Appendix E contains individual indicator rating by location. There are three long-term vegetation study sites located in pastures 1, 2, and 3; Appendix G contains graphs of the nested plot frequency data. The allotment map at the end of this document shows the location within the pastures represented by the rangeland health assessment worksheets and the locations of the long-term vegetation study sites.

Table B4-1: Indicators of Rangeland Health

Standard 4-	Degree of Departure				
	None to Slight	Slight to Moderate	Moderate	Moderate to Extreme	Extreme
Pasture 1[*1]	14	2	1	1	0
Pasture 2[*2]	14	2	2	0	0
Pasture 3[*3]	15	5	6	0	1
Pasture 4*[4]	12	1	5	0	0
Pasture 5 *[5]	7	2	0	0	0

[*1]- summarizes; 2 Shallow Claypan 12-16" ecological sites
[*2]- summarizes; 2 Shallow Claypan 12-16" ecological sites
[*3]- summarizes 1 Loamy 13-16", and 1 Shallow Claypan 12-16", and 1 Very Shallow Stony Loam 10-14" ecological sites
[*4]- summarizes 1 Loamy 13-16", and 1 Very Shallow Stony Loam 10-14" ecological site
[*5]-summarizes: 1 Loamy 13-16" ecological site

Pasture 1

Rangeland Health Indicators
RH1A (T7S R2W Sec21) represents a Shallow Claypan 12-16" ecological site with inclusions of a Loamy ecological site in the northwestern portion of the pasture. At this location, the indicator for invasive plants rated in the moderate range of departure from expected conditions for this ecological site. Cheatgrass is common, and areas of western juniper, rabbitbrush, and Scotch thistle are scattered. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

RH1B (T7S R2W Sec20) represents a Shallow Claypan 12-16" ecological site in the north-central portion of the pasture. At this location the indicator for invasive plants rated in the moderate-to-extreme range of departure due to Western juniper which was described as being common, with multiple age classes. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

Long-term Vegetation Studies (Trend)

TR1A (07S02W20), a nested plot frequency transect (NPFT) study was established in 1986 and re-read in 1997 and 2001. At this location, Idaho fescue frequency increased from 71 percent in 1986 to 86 percent in 2001. Bottlebrush squirreltail frequencies increased from 8 percent in 1986 to 38 percent in 1997, then declined slightly to 33 percent in 2001. Sandberg bluegrass frequencies were stable during the period of record, averaging 96 percent frequency. The frequency of low sagebrush increased form 73 percent in 1986 to 90 percent in 1997 and then increased slightly to 93 percent in 2001. Shrub density data recorded an increase in low sagebrush also, from 17,600 plants per acre in 1997 to 28,900 in 2001. Landscape scale and photo-plot photographs show a healthy and vigorous low sagebrush/ Idaho fescue plant community, although Western juniper is present nearby.

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Additional data were collected at the nested plot frequency transect 07S02W20 in 2007 and 2011. Frequency data for perennial bunchgrass species indicate a static trend in condition with little change in the frequency of Idaho fescue, and Sandberg bluegrass. Bluebunch wheatgrass remained at a low frequency at the trend site, while squirreltail frequency declined between 2001 and 2007 and returned by 2011 to levels recorded in 2007. The change in frequency of squirreltail recorded in 2011, compared to 2007, is the only change that is statistically significant of these data (students T-test; p-value <0.1). The recorded density of both mature and seedling low sagebrush has increased since 2007. Data are presented in the following graphs. These data through the year 2001 were also presented in graph form within the 2006 assessment for the Louisa Creek allotment within Appendix G.

Figure VEG-8: Frequency of native perennial bunchgrass species at the trend transect (T. 07S., R. 02W., Sec 20) in pasture 1 of the Louisa Creek allotment

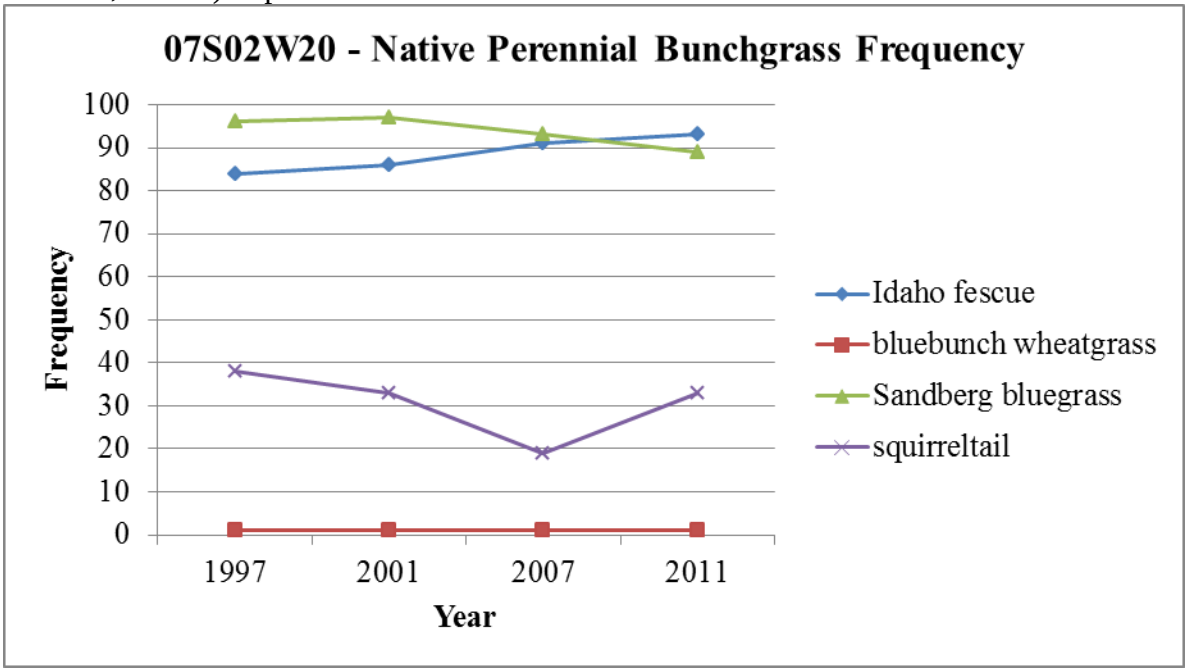
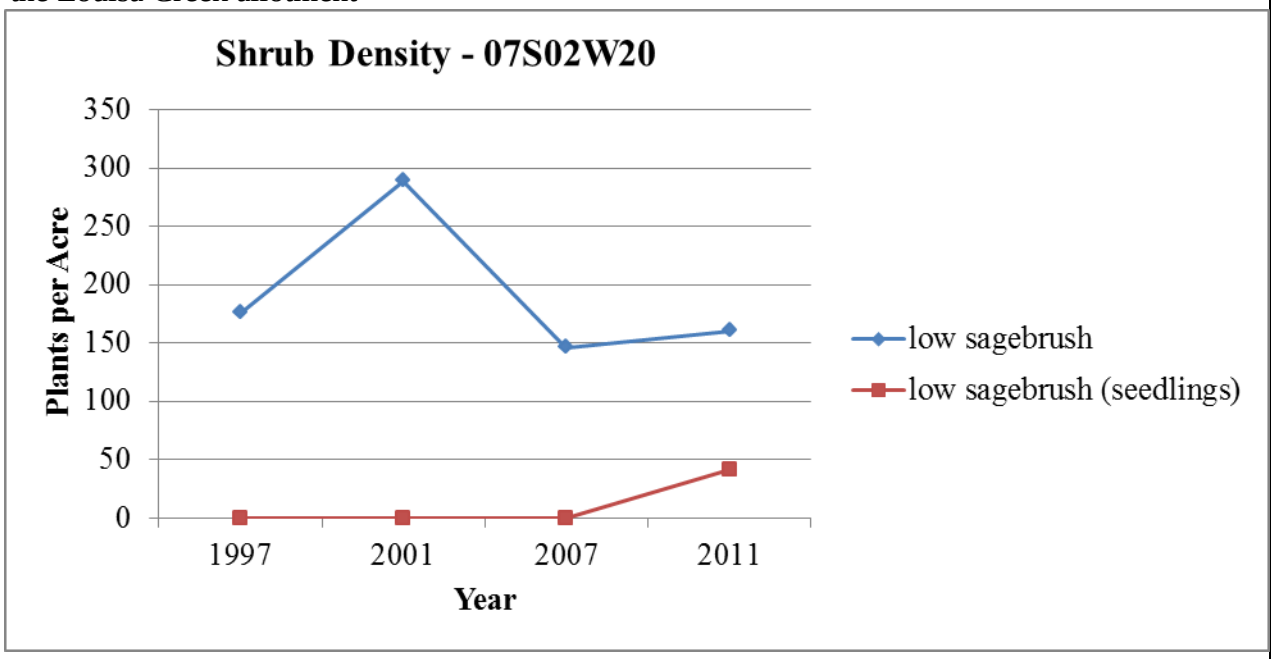


Figure VEG-9: Density of shrubs at the trend transect (T. 07S., R. 02W., Sec 20) in pasture 1 of the Louisa Creek allotment



The two rangeland health assessments completed within pasture 1 and one trend plot indicate that Standard 4 is met, although all assessments document the reduced occurrence of bluebunch wheatgrass and co-dominance with Idaho fescue compared to reference site conditions. The ORMP objectives to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is met within the pasture, although future livestock management

practices need to be implemented in a manner that allows bluebunch wheatgrass recovery to a level of co-dominance with Idaho fescue.

Pasture 2

Rangeland Health Indicators

RH2A (T7S R2W Sec28) represents a Shallow Claypan 12-16" ecological site with inclusions of Loamy 13-16" ecological site in the central portion of the pasture. At this location the indicator for invasive plants rated in the moderate range of departure from expected conditions for this ecological site. Common occurrences of Western juniper and cheatgrass with bur buttercup and scotch thistle reported along the roadway. Scotch thistle is listed as a noxious weed in Idaho. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

RH2B (T7S R2W Sec34) represents a Shallow Claypan 12-15" ecological site in the southern portion of the pasture. At this location the indicator for invasive plants rated in the moderate range of departure, as a result of Western juniper being scattered throughout the site. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

Long-term Vegetation Studies (Trend)

TR2A (07S02W34), a photo-plot study was established in 1986, and was converted to a nested plot frequency transect (NPFT) study in 1997 and 2001. This study is located among western juniper trees. Photographs in 1986 show perennial grasses and low sagebrush with little bare ground. Photographs in1997 and 2001 show an increase in the amount of bare ground, and fewer shrubs and grasses. Frequency data shows an increase in Idaho fescue and squirreltail from 45 percent in 1997 to 57 percent in 2001. Frequencies of Sandberg bluegrass were stable, with 87 percent in 1997 and 93 percent in 2001. Frequency of low sagebrush decreased from 65 percent in 1997 to 47 percent in 2001. Landscape scale and photo-plot photographs show a slightly improved plant community, with perennial grass vigor improving and the basal diameter of perennial bunchgrass was increasing.

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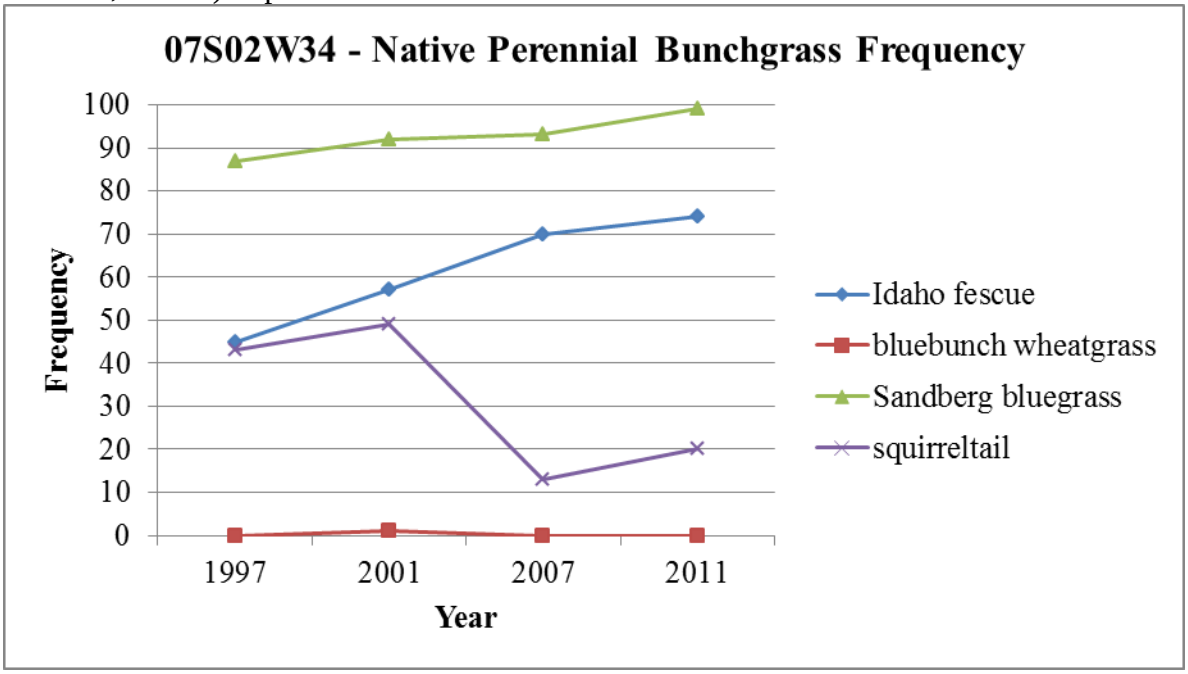
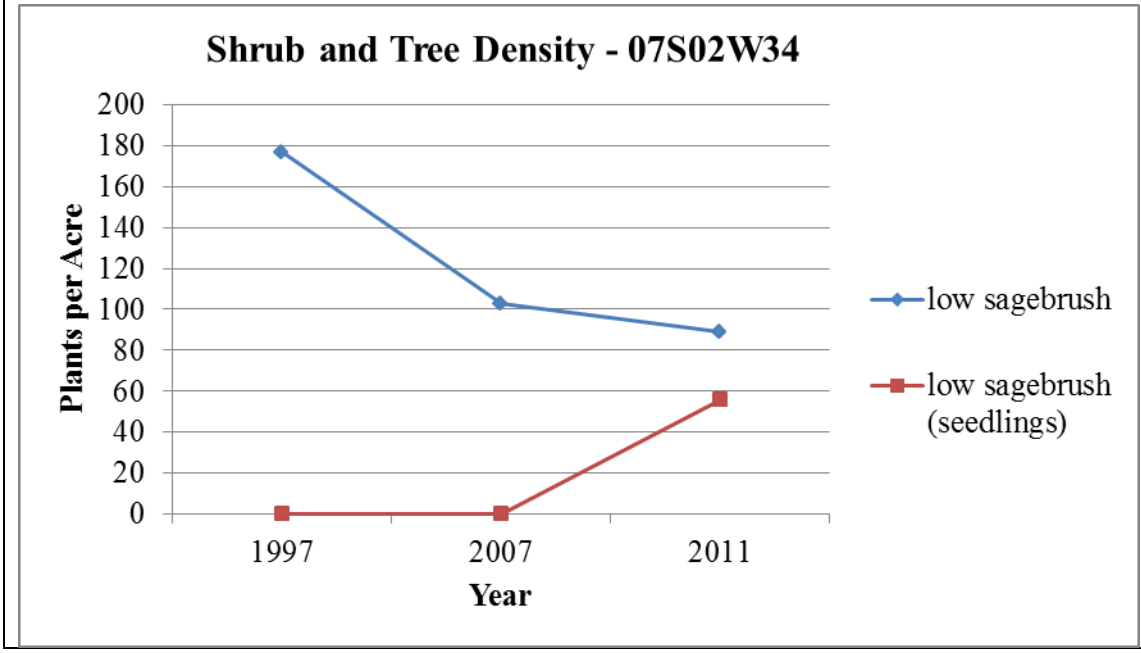
Additional data were collected at the nested plot frequency transect 07S02W34 in 2007 and 2011. Frequency data for perennial bunchgrass species indicate a static to upward trend in condition with continued increase in the frequency of Idaho fescue and Sandberg bluegrass. Bluebunch wheatgrass remained at a low frequency at the trend site, while squirreltail frequency declined between 2001 and 2007 and increased again by 2011. While the recorded density of mature low sagebrush has decreased since 1997, the density of low sagebrush seedlings has increased since 2007. Data are presented in the following graphs. These data through the year 2001 were also presented in graph form within the 2006 assessment for the Louisa Creek allotment within Appendix G.

Figure VEG-10: Frequency of native perennial bunchgrass species at the trend transect (T. 07S., R. 02W., Sec 34) in pasture 2 of the Louisa Creek allotment



These data are consistent with 2012 sage-grouse habitat assessment data for two sites in low sagebrush vegetation communities and two sites in mountain sagebrush vegetation communities. Cover of mid and deep-rooted perennial bunchgrasses recorded in those data were 4 and 10 percent at the two low sagebrush sites. Similarly, cover of mid and deep-rooted perennial bunchgrasses was 24 and 26 percent at the two mountain big sagebrush sites.

Figure VEG-11: Density of shrubs at the trend transect (T. 07S., R. 02W., Sec 34) in pasture 2 of the Louisa Creek allotment



The two rangeland health assessments completed within pasture 2 and one trend plot indicate that Standard 4 is met. All document the reduced occurrence of bluebunch wheatgrass co-dominance with Idaho fescue as compared to reference site conditions. These data are consistent with perennial bunchgrass cover recorded in 2012 sage-grouse habitat assessments. The ORMP objectives to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is met within the pasture. Similar to pasture 1, future livestock management practices need to be implemented in a manner that allows bluebunch wheatgrass recovery to a level of co-dominance with Idaho fescue. Juniper is present in localized areas.

Pasture 3

Rangeland Health Indicators

RH3A (T8S R2W Sec6) represents a Very Stony Loam 10-14" ecological site in the north-central portion of the pasture. At this location the indicators for soil surface resistance to erosion, functional/structural groups, and invasive plants rated in the moderate range of departure from expected conditions for this ecological site. Soil loss was evidenced by plant pedestalling and water flow paths. The moderate rating for functional/structural groups was characterized by the lack of bunchgrasses in shrub interspaces. Invasive plant species; Western juniper and cheatgrass are scattered throughout the site. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

RH3B (T8S R2W Sec7) represents a Loamy 13-16" ecological site in the west-central portion of the pasture. At this location all indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

RH3C (T8S R2W Sec8) represents a Shallow Claypan 12-16" ecological site in the southeastern portion of the pasture. At this location the indicator for invasive plants rated in the extreme range of departure from expected conditions for this ecological site due to the dominance of Western juniper in the plant community. The indicators for soil loss or degradation, functional/structural groups and plant mortality and decadence rated in the moderate range of departure. Soil loss was evidenced by plant pedestalling, loss of surface fines, and weak organic matter. Functional/structural groups rated moderate due to the localized replacement of low sagebrush and bluebunch wheatgrass with Western juniper. Plant mortality was characterized by shrub die-out. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

Long-term Vegetation Studies (Trend)

TR3A (08S02W08), a nested plot frequency transect study was established in 1986 and re-read in 1997 and 2001, although only photographs exist for 1986. Photographs over the years show continual increase in the basal girth of perennial bunchgrasses and an increase in size of low sagebrush plants throughout the view. Frequency data corroborates the photographic interpretation with a decrease in low sagebrush from 31 percent in 1997, to 15 percent in 2001. Idaho fescue frequencies decreased slightly from 71 percent to 62 percent in 2001. Bluebunch wheatgrass also decreased from17 percent in 1997 to 6 percent in 2001, and Sandberg bluegrass

and bottlebrush squirreltail increased from 59 percent to 82 percent and 11 percent to 20 percent respectively.

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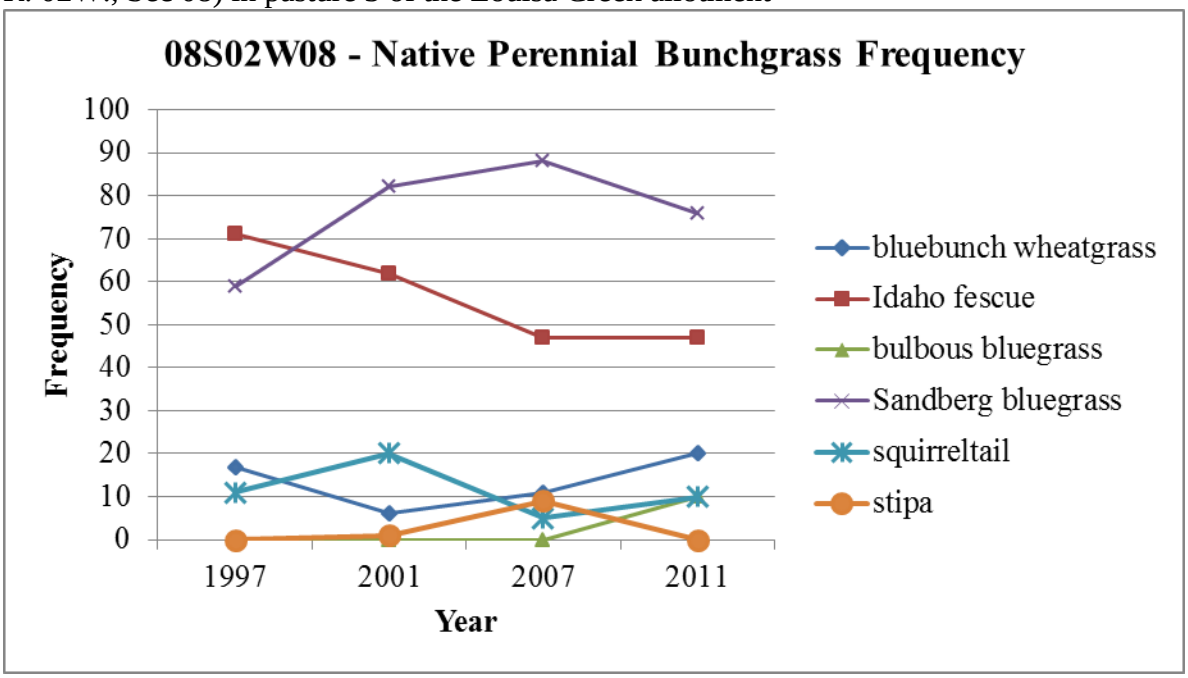
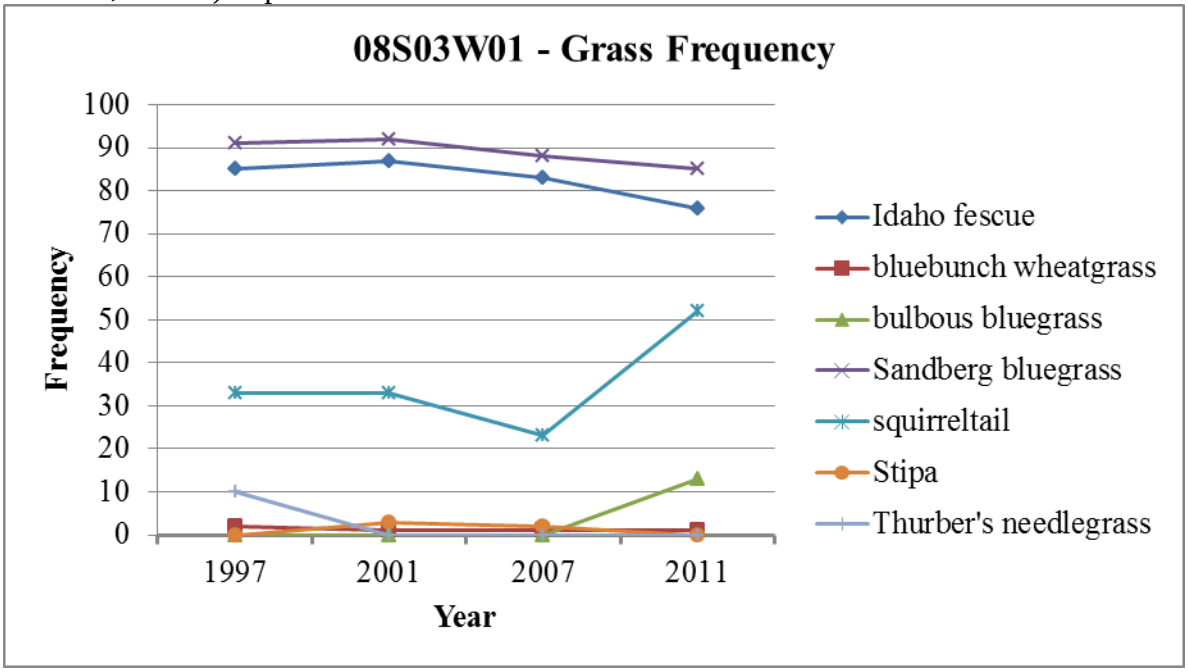
Additional data were collected at the nested plot frequency transect 08S02W08 in 2007 and 2011. Frequency data for perennial bunchgrass species indicate a static to downward trend in condition with continued decreased in frequency of Idaho fescue since 1997. Although bluebunch wheatgrass data indicate a slight increase in frequency from 2001 through 2011, frequency of Sandberg bluegrass, squirreltail, and stipa indicate a static trend. No density of trees or shrubs is recorded for the trend site at T. 08S., R. 02W., Sec 08. Bunchgrass frequency data are presented in the following graph. These data through the year 2001 were also presented in graph form within the 2006 assessment for the Louisa Creek allotment within Appendix G.

Figure VEG-12: Frequency of native perennial bunchgrass species at the trend transect (T. 08S., R. 02W., Sec 08) in pasture 3 of the Louisa Creek allotment



Additionally, a nested frequency trend site was established at T.8S., R.3W., Section 1, with data collected in 1997, 2001, 2007, and 2011. Although Idaho fescue has a moderate frequency in plots through all dates, that frequency has consistently decreased since 2001. Over the period from 1997 to 2011, the frequency of bluebunch wheatgrass and other deep-rooted bunchgrasses that should dominate at reference site conditions have remained very low. These data identify a downward trend.

Figure VEG-13: Frequency of native perennial bunchgrass species at the trend transect (T. 08S., R. 03W., Sec 01) in pasture 3 of the Louisa Creek allotment



These data are consistent with 2012 sage-grouse habitat assessment cover data for mid- and deep-rooted perennial bunchgrasses. These data recorded 22 percent cover at one low sagebrush vegetation community site.

The three rangeland health assessments completed within pasture 3 and two trend plots indicate that Standard 4 is not met due to juniper dominance at greater than reference site conditions and the equivalent loss of sagebrush and mid-statured bunchgrass species, especially at the RHA site within T.8S., R.2W., Sec8. The reduced occurrence of bluebunch wheatgrass, as compared to reference site conditions, is recorded at the three RHA sites and two trend sites.

The ORMP objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is not met within the pasture, as documented by the presence of bluebunch wheatgrass occurrence less than potential at reference site conditions. Additionally, the frequency of Idaho fescue, the bunchgrass species that is the dominant for the site, has experienced a downward trend since 1997. Juniper dominance needs to limited or reduced and future livestock management practices need to be implemented in a manner that allows deep-rooted bunchgrasses and shrubs to recover to a level of co-dominance with sagebrush species.

Pasture 4

RH4A (T8S R2W Sec21) represents a Loamy 13-16” ecological site in the northern portion of the pasture. At this location the indicators for invasive plants, functional/structural groups, and soil surface loss or degradation rated in the moderate range of departure. The indicator for invasive plants was characterized by the common occurrence of Western juniper throughout the site. Soil loss was evidenced by plant pedestals and terracettes, and functional/structural groups

were over represented by Western juniper and Sandberg bluegrass. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

RH4B (T8S R2W Sec28) represents a Very Stony Shallow Loam 10-14" ecological site in the southern portion of the pasture. At this location the indicators for invasive plants and functional/structural groups rated in the moderate range of departure. Invasive plants were characterized by the common occurrence of Western juniper, especially around the perimeter of the area. Functional/structural groups rated in the moderate range due to more Western juniper, and rabbitbrush than expected. Other indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

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The two rangeland health assessments completed within pasture 4 indicate that Standard 4 is not met due to juniper dominance greater than reference site conditions and the equivalent loss of sagebrush and deep-rooted bunchgrass species. The reduced occurrence of bluebunch wheatgrass, as compared to reference site conditions, is recorded at the two RHA sites.

The ORMP objectives to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is not met within the pasture, as documented by the presence of bluebunch wheatgrass occurrence at less than potential for reference site conditions. Juniper dominance needs to be limited or reduced while future livestock management practices need to be implemented in a manner that allows deep-rooted bunchgrasses and shrubs to recovery to a level of co-dominance with sagebrush species.

Pasture 5

Rangeland Health Indicators

RH5A (T8S R2W Sec28) represents a Loamy 13-16" ecological site in the northern portion of the pasture. At this location all indicators for biotic integrity rated in the none-to-slight or slight-to-moderate ranges of departure, which represent acceptable variations in condition.

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Standard 4 is not met in pasture 5 of the Louisa Creek allotment due to juniper dominance of vegetation communities. Although the one rangeland health assessment completed within this pasture concludes that the overall departure of biotic integrity from reference site conditions is at most slight-to-moderate and the presence of juniper was noted under the indicator for invasive species as a slight-to-moderate departure, review of photos associated with the assessment show a heavy dominance by juniper at the site and 2011 NAIP imagery show the dominance by juniper is pasture-wide, indicating that Standard 4 is not met in this pasture.

The ORMP objectives to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas is not met within the pasture due to the dominance by juniper and as documented by the presence of bluebunch wheatgrass occurrence at less than potential for reference site conditions. Future livestock management practices need to be implemented in a

manner that allows mid-statured bunchgrasses, primarily bluebunch wheatgrass, to recover to a level of co-dominance with Idaho fescue.

Upland Utilization Monitoring

Utilization is the percentage of annual production of forage that has been removed by animals during the grazing season. Upland utilization data from 1990 to 1999 shows average utilization in Pasture 1 was 27 percent, Pasture 2 averaged 'No-Use', Pasture 3 averaged 68 percent use, and no data was available on Pastures 4, and 5.

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Utilization records for the pastures of the Lone Tree allotment through 2012 are summarized in the following graphs.

Figure VEG-14: Annual average utilization for pasture 1 of the Lone Tree allotment

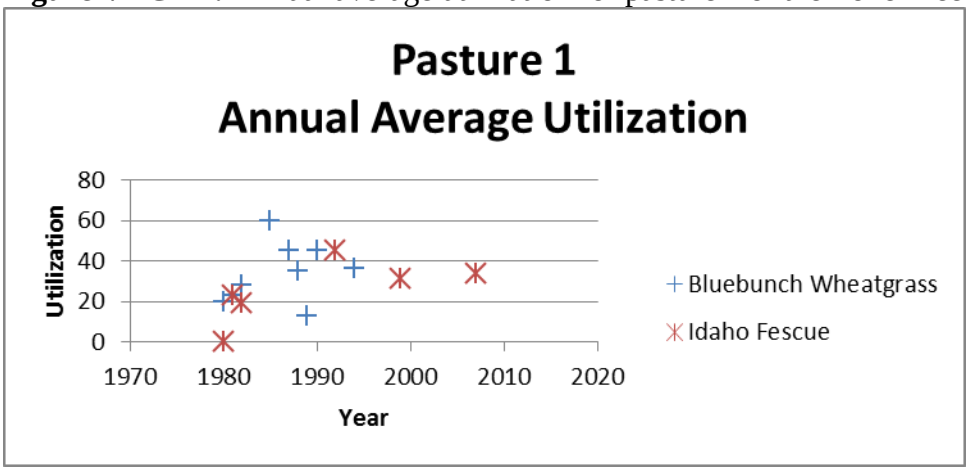


Figure VEG-15: Annual average utilization for pasture 2 of the Lone Tree allotment

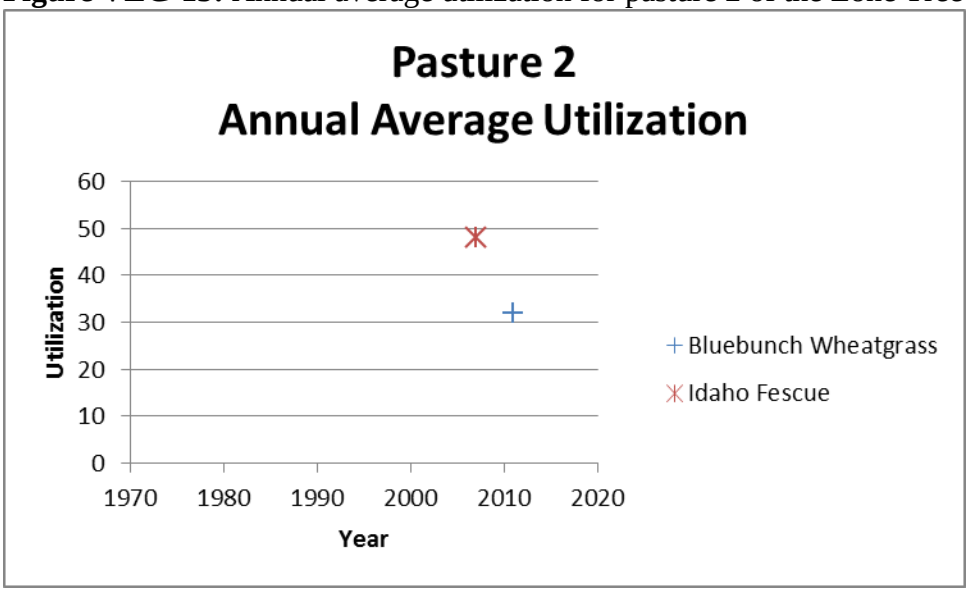
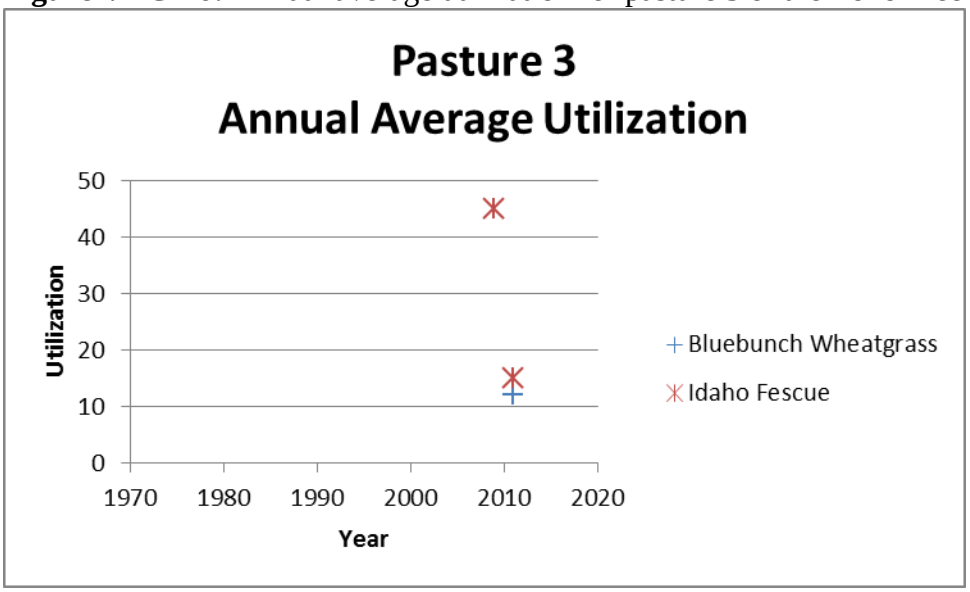


Figure VEG-16: Annual average utilization for pasture 3 of the Lone Tree allotment



The lack of utilization data for pastures 4 and 5 noted in the 2006 assessment continues, with no data recorded through 2012. Utilization data for pastures 1, 2 and 3, although limited, indicate that recorded utilization of key species has not exceeded the upland forage utilization limit of 50 percent identified in the Livestock Grazing Management Actions and Allocations of the ORMP since its implementation in 1999.

5. Standard: Rangeland Seeding

This standard does not apply on this allotment.

6. Standard: Exotic Plant Communities

This standard does not apply on this allotment.

7. Standard: Surface and Ground Water Quality

This assessment includes a review of data collected and water quality standards established by Idaho Department of Environmental Quality (IDEQ). The State is divided into basins, sub-basins, and assessment units. The new 2005 Integrated Report (303(d)/305(b)) uses "assessment units" within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned Beneficial Uses with associated Water Quality Standards. Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site- see references listed in section IV of this document).

Bureau of Land Management (BLM) also collects data that can include riparian inventories, riparian Proper Functioning Condition (PFC) assessments, riparian habitat evaluation forms, stream survey forms, riparian aquatic data sheets, thermograph data and water quality monitoring data (BLM data is available at the Owyhee Field Office).

Louisa Creek Allotment lies within two sub-basins. The State of Idaho criterion for cold-water biota beneficial use requires water temperatures of 22º C or less with a maximum daily average of less than 19º C. The criterion for salmonid spawning is water temperatures of 13º C or less with a maximum daily average no greater than 9º C.

Pasture 1

North Fork Castle Creek
The North Fork of Castle Creek is within the South West Basin (#1705) and lies within the Middle Snake-Succor Sub-Basin (#103), the Hydrologic Unit Code for this stream is #17050103. The segment in Pasture 1 is #17050103SW014_02a. The creek is identified as impaired water that is not meeting sediment and temperature criteria. Total Maximum Daily Loads (TMDL) have not been assigned for this stream, however the BLM placed a temperature logger in the stream during the spring and summer of 2004. Temperatures exceeded criteria for Cold Water Aquatic Life (CWAL) and Salmonid Spawning (SS).

Pasture 2

Rock Creek
Rock Creek is assessment unit #17050103SW013_03. Rock Creek flows through the south-west boundary for 1.4 miles of Pasture 2. IDEQ lists this segment as in full support of Cold-Water Aquatic Life (CWAL) criteria, Total Maximum Daily Loads (TMDL) have not been assigned. BLM temperature logger was placed in stream through spring and summer of 2004. Temperatures exceeded criteria for CWAL and SS.

Pastures 3 and 5

Louisa Creek

The Louisa Creek Allotment is within the South West Basin (Hydrologic Unit Code (HUC) #1705) and lies within the Jordan Sub-Basin (#108). Louisa Creek within the allotment is assessment unit, #17050103SW014_02. Louisa Creek heads in Pasture 5, flowing approximately 0.2 mile, and 2.6-miles in the middle of Pasture 3. IDEQ lists Louisa Creek as impaired water quantity and exceeding sediment and water temperature criteria. BLM data collected in 2001 indicates the water is too warm to meet CWAL criteria.

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Current IDEQ information (2010 Integrated Report) identifies that there are approximately 13.7 miles of stream on BLM lands within the Louisa allotment that are not supporting the beneficial uses. There are portions of six AUs within the allotment, and five of them are not supporting the beneficial uses, while one has not been assessed (Table RIPN-5). The five AUs all have approved TMDLs for temperature; however, AU # ID17050108SW013_02 and ID17050108SW014_02 both have streams that continue to be 303(d) listed for flow alteration and AU # ID17050108SW014_02 also remains listed for sediment.

Additionally, BLM has monitored stream temperature in North Fork Castle, Rock, and Louisa Creeks. All of the streams exceed the temperature criteria set by the state for cold-water aquatic life (19.3, 21.4, and 22.4 respectively). The criteria, as defined by the state, set a Maximum Daily Average Temperature (MDAT) of 19° C.

Potential Natural Vegetation (PNV) TMDLs were developed for temperature for the AUs that occur within the allotment. Idaho water quality standards include a provision (IDAPA 58.01.02.200.09), which establishes that if natural conditions exceed numeric water quality criteria, exceedance of the criteria is not considered to be a violation of water quality standards. In these situations, natural conditions essentially become the water quality standard, and the natural level of shade and channel width become the target of the TMDL. The in-stream temperature that results from attainment of these conditions is consistent with the water quality standards, even though it may exceed numeric temperature criteria (Jordan Creek TMDL, 2009). However, current IDEQ information indicates that there are reaches of Louisa Creek that occur in pasture 3 on BLM land that have been evaluated for temperature using the PNV approach that are not meeting the shade target established.

Table RIPN-5: IDEQ information for the Louisa Creek allotment

AU #	AU Name	Pasture the AU occurs in	Beneficial Use Not Meeting	Pollutant/ Pollution	TMDL
ID17050103SW014_02	Castle Creek - 1st & 2nd order rangeland tributaries	1, 2	CWAL[1]	temperature	All Streams
ID17050103SW014_02a	Castle Creek - 1st & 2nd	[1]	CWAL SS[2]	temperature	All Streams

	order forested tributaries				
ID17050108SW010_02	Triangle Creek and unnamed tributaries to Rock Creek	1, 2, 3	not assessed		
ID17050108SW013_02	Rock Creek above Triangle Reservoir - 1st and 2nd order	2, 3, 4, 5	CWAL	temperature flow alteration	All Streams NO
ID17050108SW013_03	Rock Creek above Triangle Reservoir - 3rd order	2	CWAL	temperature	All Streams
ID17050108SW014_02	Louisa Creek - entire drainage	3, 4, 5	CWAL	sediment/ siltation flow alteration temperature	NO NO All Streams

[1]CWAL = cold water aquatic life
[2]SS = salmonid spawning

8. Standard: Threatened and Endangered Plants and Animals

Botany

No federally listed plant species are known to occur in the Louisa Creek Allotment, although the U.S. Fish and Wildlife Service (USFWS) considers all of Idaho to be within the potential range of Ute ladies'-tresses (*Spiranthes diluvialis*), a federally threatened orchid species. This plant occurs in springs, seeps, and riparian habitats. Due to the difficulty in narrowly defining potential habitat for this species, USFWS has chosen to apply a loose definition and requires Section 7 consultation only in three counties of southeast Idaho or in areas where the plant is actually found (USFWS 2002). Surveys specifically for this plant are recommended prior to authorizing federal actions in southwest Idaho, but not required (USFWS, 2002).

No BLM special status plant species are known to occur on the Louisa Creek Allotment. Site-specific plant surveys are conducted prior to construction of range projects.

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Botany

No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment for this reason this standard is not applicable.

Information sources

Elemental Occurrences (EOs) for special status species (SSP) populations are recorded in the Idaho Fish and Wildlife Information System (IFWIS) Species Diversity database (IDFG, 2011). EOs are derived by completion and review of Idaho rare plant observation reports through the Idaho Natural Heritage Program. Other sources that were used to assess and evaluate the composition and condition of SSP habitats within the Louisa Creek allotment include RHAs, photographs, field notes, Plants database (USDA NRCS, 2013), literature search, and information summarized above in RHA Standards in this document. Records show no reported special status plants in this allotment.

Wildlife

A number of species classified as Bureau of Land Management (BLM) "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within these allotments. A summary of these species, their legal status, and their key habitat associations are listed in Appendix C.

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Wildlife Habitats

Information Sources

Information sources that were used to assess and evaluate the composition and condition of wildlife habitats within the Louisa Creek allotment include sage-grouse habitat assessments (SG HA; 2012), land cover classification (2002), aerial imagery (2011), photographs (2000, 2001, 2004, 2012, 2013), and field visit (2013) in addition to information summarized above in Standards 1, 2, 3, 4, and 7 in this document.

Landscape Setting

Two Level IV Ecoregions of Idaho are represented within the present allotment and include the Owyhee Uplands and Canyons (80f) and Semiarid Uplands (80j) (Map WDLF-1) (McGrath, et al., 2002). Although these ecoregions are relatively similar, they are distinguished by differences in physiography, precipitation, and elevation. The Owyhee Uplands and Canyons ecoregion occurs at mid to high elevations and is characterized by a volcanically-derived landscape of lava fields and tuffaceous outcrops dissected by deep, sometimes precipitous canyons. Vegetation communities in this ecoregion include mesic shrub steppe, mountain shrub, and woodlands. The Owyhee Uplands and Canyons ecoregion predominates and is best represented in pastures 1 and 2 (Map WDLF-1). The Semiarid Uplands ecoregion is characterized by mountains, hills, and valleys that ascend out of the surrounding uplands; these areas typically are dominated by mesic shrub steppe, mountain shrub, woodland, and forest communities (Map WDLF-1). The Semiarid Uplands ecoregion in the allotment is represented in pastures 3 and 5, and is characterized by

mountain ridges and slopes with juniper woodland and mountain big sagebrush mesic shrub steppe vegetation communities.

Habitat, Cover Types, and Ecological Sites

A variety of major habitats and general cover types occur within the allotment (Table WDLF-10; Map WDLF-2). These upland and riparian habitats and cover types occur within a variety of ecological sites that will be discussed by pasture in more detail below.

Table WDLF-10: Major habitat and general cover types within the Louisa Creek allotment

Habitat Type	General Cover Type	Percentage of Allotment	
		General Cover Type	Habitat Type
Grassland	bunchgrass	5	5
Shrub Steppe[1]	big sagebrush	3	51
	mountain big sagebrush	21	
	low sagebrush	27	
Mountain Shrub	mountain shrub	12	12
	bitterbrush	<1	
Forest	juniper	30	30
Riparian	wet meadow	1	1
Non-native/Disturbed	exotic annuals	1	1

[1]Shrub steppe habitat type includes the predominant big and low sagebrush communities in the area. Big sagebrush (*Artemisia tridentata*) cover types include communities dominated by the subspecies Basin (*tridentata*). Mountain big sagebrush (*A. tridentata vaseyana*) and low sagebrush (*A. arbuscula*) cover types comprise the remaining sagebrush communities.

Riparian Habitat

Five proper functioning condition assessments were conducted on the 6.04 miles of stream riparian habitat in this allotment. Three Proper Functioning Condition assessments were Functional-At Risk with an upward trend. Two assessments were Functional-At Risk with static trend, the structural diversity, composition and vigor of hydric vegetation are at least partially lacking in these stream reaches resulting in habitat that is generally not adequately providing for the needs for dependant special status animals.

Two springs were assessed; Antelope Spring is fenced to exclude livestock, it is in Proper Functioning Condition (PFC) and appears to support riparian habitat that is adequate to provide for the needs of dependant special status animals. Toy Spring is Nonfunctional has limited available cover and forage, resulting in disturbance of associated habitat and populations. This spring has been developed diverting available water into a livestock watering trough for management purposes.

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General Riparian Habitat

The present assessment will provide details about the type/s and conditions of riparian habitats by pasture.

Pasture 1
In pasture 1, 1.2 miles of North Fork Castle Creek were assessed as FAR with an upward trend. Conditions appear to be adequate for dependent migratory birds in some, but not the majority of, areas. In some areas, willows and other riparian shrubs are providing abundant woody cover; also, herbaceous riparian vegetation species in the understory are providing ample cover and succulent forage. Where they occur, woody species display diverse species and age-classes with multiple canopies, which are providing structurally complex breeding, nesting, and foraging habitat for dependent species. Areas of open water are providing foraging opportunities for aerial foragers such as swallows and bat species.

Pasture 1 also contains several intermittent stream valleys that support wet meadow and limited woody riparian habitats (lower Cow Valley Creek). These areas have not been assessed for PFC.

At least three springs/seeps and associated lentic riparian areas also occur in pasture 1. Antelope Spring is located in an exclosure and was assessed as PFC in 2004 (see Standard 2). A site visit to Antelope Spring revealed abundant riparian vegetation within the exclosure. Various age-classes of willows are providing structurally complex nesting and foraging substrates for migratory bird species, and plentiful herbaceous vegetation is also providing adequate habitat conditions for most dependent species. Nevertheless, soils and vegetation were heavily impacted by herbivory and trampling outside of the exclosure (see Standard 2). Stageroad Spring has not been assessed, but due to livestock impacts, an exclosure was built around it in 2013 and riparian habitat conditions are expected to improve. An unnamed spring/seep associated with one of the wet meadows mentioned above has not been assessed for PFC.

Pasture 2
In pasture 2, 1.8 miles of Rock Creek were assessed for PFC (see Standard 2). The majority of assessed areas were rated PFC. Conditions appear to be adequate for dependent migratory birds. Willows and other riparian shrubs are providing abundant woody cover. In areas, woody species display diverse species and age-classes with multiple canopies which are providing structurally complex breeding, nesting, and foraging habitat for dependent species. Areas of open water are providing foraging opportunities for aerial foragers such as swallows and bat species.

Pasture 2 also contains several intermittent stream valleys, but wet meadows and woody riparian habitats are lacking. These areas have not been assessed for PFC.

Toy Seep is located in pasture 2 and was assessed as NF in 2004. Disturbance was described as extreme and riparian habitat is absent.

Pasture 3
Approximately 3 miles of Louisa Creek in pasture 3 were assessed as FAR in 2001. The character of the stream and riparian habitats vary within the pasture. Louisa Creek flows into pasture 3 from the south and is located in a narrow, steep canyon. The stream appears to be intermittent and woody riparian habitat occurs in small patches. As the canyon narrows and deepens, a closed canopy of nearly continuous woody riparian species occur in the narrow floodplain. A relatively large area of riparian habitat (approximately 3 acres) occurs on an area of

soil deposition at the top of a reservoir in the middle of the allotment. Below the reservoir, remains in a narrow, deep canyon and is similar in character and riparian habitat to the canyon section above. In the northern portion of the pasture, the creek meanders in a relatively open valley. Although the floodplain is the widest (30 to 40 feet) in comparison with the remainder of the stream (less than 30 feet) within the pasture, woody riparian species and habitat occurs as widely, spaced small patches of shrubs and larger trees. Juniper encroachment is ubiquitous and increases in density from north to south.

Conditions appear to be adequate for dependent migratory birds. Willows and other riparian shrubs appear to be providing abundant woody cover. Also succulent herbaceous vegetation is evident in the floodplain in some places in the northern portion of the pasture and probably is providing understory cover and forage. In canyon stretches, woody species can display diverse species and age-classes with multiple canopies which are providing structurally complex breeding, nesting, and foraging habitat for dependent species.

The large reservoir in the middle of the pasture is providing foraging opportunities for aerial foragers such as swallows and bat species. As well as a resting/foraging stop-over site for migrating shorebirds, waterbirds, and waterfowl.

Pasture 3 also contains several ephemeral stream valleys that do not support riparian habitat.

Pasture 3 does not contain any known spring-associated lentic riparian/wetland areas.

Pastures 4 and 5
Pastures 4 and 5 contain many ephemeral stream valleys mostly located in rocky canyons that appear to support little if any riparian habitat (including Louisa Creek).

Pastures 4 and 5 do not contain any known spring-associated lentic riparian/wetland areas.

General Upland Habitat
Abundance and diversity of grasses, forbs, and shrubs are generally as expected for the site and are likely to be providing habitat that is adequate for the needs of most dependant special status and other wildlife species. The localized lack of large bunchgrasses and reduced shrub cover is limiting cover, structure and forage for sage grouse, numerous song birds, pygmy rabbits and others including a diversity of insects, rodents, birds and others that are critical prey for most raptors including prairie falcons, northern harriers, and ferruginous hawks. While mature stands of western juniper provide high quality habitat for a large diversity of birds, bats and other species, increasing dense stands of young (seral) juniper have been shown to support a reduced diversity and abundance of birds (Sauder 2002). A summary of threatened and sensitive species is included in Appendix C.

This allotment includes mule deer, elk, and antelope spring/summer/fall habitat (1999 Owyhee RMP). With the exception of western juniper encroachment and the common presence of cheatgrass within the upland plant communities, rangeland health conditions are adequately providing adequate big game habitats.

General Upland Habitat

Pastures 1 and 2

Several upland habitats and cover types occur within the predominant ecological sites within pastures 1 and 2 (Table WDLF-10, WDLF-11, and WDLF-12).

Table WDLF-11: NRCS Ecological Sites[1] within Louisa Creek allotment pasture 1

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Low Sagebrush	Shallow Claypan 12-16 ARAR8/FEID	94	94

[1]Approximately 6 percent of the pasture is classified as an unknown/no data.

Table WDLF-12: NRCS Ecological Sites[1] within Louisa Creek allotment pasture 2

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	7	7
	Low Sagebrush	Shallow Claypan 12-16 ARAR8/FEID	87	87

[1]Approximately 7 percent of the pasture is classified as an unknown/no data.

Based on the most current information, upland habitat conditions in pastures 1 and 2 have remained mostly static (with the exception of Idaho fescue, which continues on an upward trend in pasture 2) and similar to those noted in the previous assessment. Sagebrush continues to provide adequate woody cover, structure, and forage for shrub-obligate and -dependent species. However, the quality of the herbaceous understory has not improved. While other bunchgrasses are well represented and near reference conditions, deep-rooted, tall-statured perennial bluebunch wheatgrass in particular remains at lower than expected levels. Although these understory conditions are minimally providing for the needs of most dependent special status species, the low occurrence of desirable bunchgrasses (PSSPS) probably is limiting habitat quality for some ground dwelling, nesting, and foraging species.

In general, upland habitat conditions in pastures 1 and 2 are near reference conditions for most indicators (see Standard 4). However, invasive species (i.e., juniper) were noted as exhibiting a moderate to moderate-to-extreme range of departure from ecological site reference conditions. The conversion of shrub steppe habitats to juniper woodlands is also a rangeland health issue in loamy mountain big sagebrush ecological sites, and is probably minimally affecting habitat suitability for obligate and dependent species.

Pastures 3, 4, and 5
Several upland habitats and cover types occur within the predominant ecological sites within pastures 3, 4, and 5 (Table WLDLF-10, WDLF-13, WDLF-14, and WDLF-15).

Table WDLF-13: NRCS Ecological Sites[1] within Louisa Creek allotment pasture 3

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	54	54
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	7	40
		Shallow Claypan 12-16 ARAR8/FEID	33	

[1]Approximately 7 percent of the pasture is classified as an unknown/no data.

Table WDLF-14: NRCS Ecological Sites within Louisa Creek allotment pasture 4

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	82	82
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	18	18

Table WDLF-15. NRCS Ecological Sites within Louisa Creek allotment pasture 5

Habitat Type	General Cover Type	Ecological Site Description	Percentage of Allotment	
			Ecological Site Description	General Cover Type
Shrub Steppe	Mountain Big Sagebrush	Loamy 13-16 ARTRV/PSSPS-FEID	89	89
	Low Sagebrush	Very Shallow Stony Loam 10-14 ARAR8/POSE-PSSPS	11	11

In general, upland habitat conditions have not improved since the previous assessment (see Standard 4). Although shrub cover has remained consistent and continues to minimally provide adequate woody cover, structure, and forage for shrub-obligate and dependent species, the quality of the herbaceous understory has declined. Deep-rooted, tall-statured perennial bunchgrasses (FEID and PSSPS) remain sparse or are declining, while mid-statured squirreltail and short-statured bluegrass (*Poa* sp.) have displayed variable trends. These understory

conditions are limiting habitat quality for many ground dwelling, nesting, and foraging species The condition and composition of both the shrub overstory and herbaceous understory seem to be substantially affected by the dominance of juniper woodlands..

Upland habitat conditions in pastures 3, 4, and 5 appear to be on a downward trend. In particular, invasive species (i.e., juniper) were noted as exhibiting moderate up to an extreme departure from ecological site reference conditions (see Standard 4). The conversion of shrub steppe habitats to dense juniper woodlands is a serious rangeland health issue and is inhibiting habitat suitability for most shrub steppe obligate and dependent species.

Sage Grouse

The Allotment has key habitat and unclassified habitat that is considered to be unsuitable for sage grouse. Western juniper encroachment is adversely affecting grouse habitat. No active leks known within the Allotment, active leks are known to be in the vicinity. Good diversity of forbs across the allotment.

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Focal Special Status Species

Greater sage-grouse

Population Ecology

No fewer than three leks (occupied or active) are located in or near the allotment. In addition, the allotment is located within several 75 percent breeding bird density (BBD) lek buffers (4 mile; Table WDLF-16 and below).

Table WDLF-16: Attendance at leks within 4 miles of the Louisa Creek allotment, 2007-2012

Lek[1]	**Pasture/s**	**Survey Year**[2]					
		2012	**2011**	**2010**	**2009**	**2008**	**2007**
2O541†*	1	0	--	--	11	19	--
2O557*	1, 2	--	--	32	--	--	--
2O619	1, 2	--	--	17	--	0	--

[1]An occupied lek is designated by the † symbol and defined as a traditional display area where two or more male sage-grouse have attended in 2 or more of the previous 5 years (Idaho Sage-grouse Advisory Committee 2006).
[2]Leks with 75 percent BBDs are designated by an asterisk.
[3]Surveys were not conducted in years indicated by dashes (--).

Habitat Characteristics

Northern Great Basin Population/Owyhee Subpopulation Mid-Scale

Recently, Idaho BLM initiated a modeling effort to identify preliminary priority sage-grouse habitat (PPH) within the Snake River Plain MZ (Makela & Major, 2012). Priority habitat includes breeding, late brood-rearing, and winter concentration areas. Because priority habitat

areas have the highest conservation value for maintaining the species and its habitat, it is BLM policy (as per WO IM 2010-071) to identify these areas in collaboration with respective state wildlife agencies. All of pasture 1, a majority of pasture 2, and a small fraction of pasture 3 are classified as PPH (Map WDLF-3). In addition, pastures 2 and 3 have areas classified as PGH (Map WDLF-3).

Owyhee Front/Triangle Local Population Fine-scale
A review of the 2012 PPH output revealed that the area around the Toy Mountain group allotments in one of the critical input data layers (i.e., Idaho Sage-grouse Key Habitat Planning Map) had for the most part not been refined since its initial creation in the early 2000s. Much of the area was coarsely classified as Conifer Encroachment (R3). Review of recent (2012) aerial imagery and a OFO land cover classification (Bunting & Strand, 2008) of the area have provided better habitat information and edits to be incorporated into the 2013 Greater Sage-grouse Habitat Planning Map (as per IM ID-2013-010). The update identifies large areas of currently Key Habitat (K) that were misclassified as R3 across the OFO, especially in the Toy Mountain group area. The update reveals that pastures 1 and 2 have a substantial amount of key habitat and a substantial amount with much of the remaining areas within the pastures classified as conifer encroachment areas (Maps WDLF-4 and WDLF-5B). Pasture 3 has a very small amount of key habitat and a sizable conifer encroachment area (Maps WDLF-4 and WDLF-5B).

Allotment/Pasture Site-scale
Based on a telemetry study of sage-grouse from the Owyhee Front/Triangle local population, seasonal locations show that pastures 1, 2, 3, and 4 contains differing amounts of breeding, upland summer, early and late brood-rearing riparian summer, and winter seasonal habitats (Table WDLF-17; Map WDLF-6; also see narrative under each allotment pasture).

Table WDLF-17: Seasonal habitat types within the Louisa Creek allotment on BLM lands

Allotment	Pasture	Seasonal Habitat[1]			
		Breeding	Upland Summer	Early/Late Brood-rearing Lentic/Lotic Areas	Winter
Louisa Creek	1	X	X	X	X
	2	X	X	X	X
	3	X	X	X	
	4	X			

Habitat Assessments
The current conditions of sage-grouse seasonal habitats were assessed following protocols outlined in the Sage-grouse Habitat Assessment Framework (SG HAF; (Stiver, Rinkes, & Naugle, 2010)). The primary habitat indicators and habitat suitability ranges within the SG HAF are consistent with sage-grouse habitat management guidelines provided by (Connelly, Schroeder, Sands, & Braun, 2000), the State of Idaho's sage-grouse management alternative (The State of Idaho, 2012), and interim BLM sage-grouse habitat management guidance as per WO-IM 2012-043. Habitat indicators and suitability ranges should not be viewed independently but rather as an assembly of vegetation components that contribute to providing for sage-grouse

seasonal habitat requirements.

Pasture 1

Habitat Characteristics

Pasture 1 is entirely within the breeding and upland summer ranges and the majority of pasture 1 is within the winter range of the Owyhee Front/Triangle local population (Map WDLF-6). The dominant low sagebrush ecological site supports breeding (including early brood-rearing), upland summer (including late-brood rearing), and winter sage-grouse habitat especially in mountain big sagebrush inclusions. In addition, a few lentic and lotic sites provide riparian summer habitat. The majority of the pasture is classified as key habitat, but also contains a relatively small portion classified as conifer encroachment areas (Maps WDLF-4 and WDLF-5B).

Breeding Habitat

Five SG HAs were used to assess breeding habitat conditions within pasture 1 (Map WDLF-5B). Three SG HAs were located within what appear to be Loamy 13-16" ARTRV/PSSPS-FEID Ecological Site inclusions within the dominant low sagebrush matrix and two SG HAs were located in the Shallow Claypan ARAR8/FEID Ecological Site. This ecological site (and inclusions) constitutes a majority of the usable sage-grouse habitat (based on cover types/ecological sites) within the pasture (approximately 94 percent of shrub steppe acres; see Table WDLF-2 above), and therefore is representative of the conditions that predominate within pasture 1.

Although three of the five transects were not conducted at the appropriate time of year, many of the components necessary for suitable breeding habitat are consistent among transect and fall within similar ranges as the two sites that were surveyed at the appropriate time (see narratives and figures below). Overall indicators of breeding habitat conditions within pasture 1 support a Suitable rating.

- **07S01W20-2012, 07S02W29a-2012,** and **07S02W29b-2012 (R025XY010ID)**
  Suitable. This ecological site is on the lower end of the suitable rating because most of the primary and supplemental indicators fell within the suitable range (sagebrush height, perennial grass and forb CC, forb diversity and abundance; Figure WDLF-1). However, a few important indicators, (perennial grass and forb height in particular) were in the marginal range and may not be providing adequate perennial vertical herbaceous understory nesting cover. In addition, the current low heights of co-dominant *Poa* sp. are not providing additional cover. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability. Although one transect was not conducted at the appropriate time of year, many of the components necessary for suitable breeding habitat fall within the similar ranges as those sites that were surveyed at the appropriate time (forb diversity and abundance in particular). Forbs would be expected to be diverse and abundant earlier in the spring when soil moisture would be higher; therefore, this data is included in the present breeding habitat assessment.
- **07S02W21-2012** and **07S02W22-2012 (R025XY011ID)**
  Suitable (*provisionally*). Although transects were not conducted at the appropriate time of year, it appears that breeding habitat within the ecological site would provisionally fall on

the lower end of suitable (Figure WDLF-2). Sagebrush components (CC, height, and growth form) and perennial herbaceous understory vertical cover appear to be adequate to provide nesting cover. Forb diversity is relatively low as is abundance; it is not clear if this is an artifact of the timing of the survey and/or the lack of conducting a belt transect at one of the transect sites. Total shrub and *Poa* sp. CC was slightly high, which may be inhibiting herbaceous understory growth.

Brood-rearing and Summer Riparian Habitats

Pasture 1 contains several intermittent stream valleys that support wet meadows and provide early/late brood-rearing and summer riparian habitats. These areas have not been assessed for PFC. Although North Fork Castle Creek occurs in the pasture, the creek is located in a narrow, deep canyon thus limiting sage-grouse usage.

At least three springs/seeps and associated lentic riparian areas also occur in pasture 1 (Map WDLF-6). Antelope Spring is located in an exclosure and was assessed as PFC in 2004 (see Standard 2). A site visit to Antelope Spring revealed abundant succulent herbaceous riparian vegetation in the early spring. However, juniper encroachment, especially in and around the spring and drainage was noted as an issue that may be limiting sage-grouse use.

Stageroad Spring and an unnamed spring/seep associated a wet meadow are located in open landscape settings where junipers are probably not limiting sage-grouse use. Riparian conditions at Stageroad Spring are expected to improve with the construction of a new exclosure in 2013; however, this may present an increased risk of fence collision when sage-grouse seek to access the site. Although these lentic site have not been assessed for PFC, sagebrush cover is present adjacent to the site and soil moisture and succulent vegetation was present in late-August.

In general, the riparian habitats available to and most likely used by sage-grouse (wet meadows and other lentic areas in open settings) are probably providing adequate conditions for early brood rearing. Although Stageroad and an unnamed spring/seep were not assessed for PFC, it appears these areas are supporting succulent herbaceous forage in the summer and most likely in spring as well. Juniper encroachment may be limiting use in some riparian habitats within the pasture (Antelope Spring).

Upland Summer Habitat

Five SG HAs were used to assess upland summer habitat conditions within pasture 1 (Map WDLF-5B). Three SG HAs were located within what appear to be Loamy 13-16 ARTRV/PSSPS-FEID Ecological Site inclusions within the dominant low sagebrush matrix and two SG HAs were located in the Shallow Claypan ARAR8/FEID Ecological Site. These ecological sites constitute a majority of the usable sage-grouse habitat (based on cover types/ecological sites) within the pasture (approximately 94 percent of shrub steppe acres; see Table WDLF-2 above), and therefore are representative of the conditions that predominate within pasture 1.

Although two of the five transects were not conducted at the appropriate time of year, many of the components necessary for suitable upland summer habitat are consistent among transect and fall within similar ranges as the three sites that were surveyed at the appropriate time (see

narratives and figures below). Overall indicators of upland summer habitat conditions within pasture 1 support a Suitable rating.

- **07S01W20-2012, 07S02W29a-2012,** and **07S02W29b-2012 (R025XY010ID)**
  Suitable (*provisionally*). Upland summer habitat in the pasture in this ecological site is rated as suitable because several of the most important primary indicators (forb abundance and diversity) and all of the supplementary indicators fall within the suitable ranges (Figure WDLF-3). Although two transects were not surveyed at the appropriate time, forb diversity was high in the spring, and because of site elevations, would probably still have appropriate soil moisture in the summer to provide continued forb forage in the summer. Sagebrush cover is slightly high and height is slightly low. However, the higher representation of *Poa* species canopy cover is probably occurring at the expense of deep-rooted, tall structured, perennial bunchgrasses that have lower canopy cover representation than expected for the ecological site. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability.
- **07S02W21-2012** and **07S02W22-2012 (R025XY011ID)**
  Suitable. This ecological site is on the lower end of the suitable rating. Although some of the primary indicators are within the marginal ranges (sagebrush CC, forb diversity and abundance), concealment cover components appear to be adequate (Figure WDLF-4). Forb diversity is somewhat low as is abundance; it is not clear if this is due to the lack of conducting a belt transect at one of the transect sites. Total shrub and *Poa* sp. CC was slightly high which may be inhibiting herbaceous understory growth.

Winter Habitat
Five SG HAs were used to assess winter habitat conditions within pasture 1 (Map WDLF-5B). Three SG HAs were located within the Loamy 13-16" ARTRV/PSSPS-FEID Ecological Site inclusions within the dominant low sagebrush matrix and two SG HAs were located in the Shallow Claypan ARAR8/FEID Ecological Site. Overall winter habitat in the pasture was rated as Suitable.

- **07S01W20-2012, 07S02W29a-2012,** and **07S02W29b-2012 (R025XY010ID)**
  Suitable. Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow (Figure WDLF-5). Sagebrush CC provides adequate concealment and thermal cover also.
- **07S02W21-2012** and **07S02W22-2012 (R025XY011ID)**
  Suitable. Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow (Figure WDLF-6). Sagebrush and other shrub CC is providing adequate concealment and thermal cover.

Pasture 2
Habitat Characteristics
Pasture 2 is entirely with the breeding and upland summer ranges of the Owyhee Front/Triangle local population (Map WDLF-6). In addition, the northern half of the pasture is within the local population's winter range. The dominant low sagebrush ecological site supports breeding

(including early brood-rearing), upland summer (including late-brood rearing), and winter sage-grouse habitat especially in mountain big sagebrush inclusions. In addition, a few lentic and lotic sites provide riparian summer habitat. The majority of the pasture is classified as key habitat, but also contains a sizeable portion classified as conifer encroachment areas, and a small amount of area classified as non-habitat (Maps WDLF-4 and WDLF-5B).

Breeding Habitat

Five SG HAs were used to assess breeding habitat conditions within pasture 2 (Map WDLF-5B). Two SG HAs were located within what appear to be Loamy 16+" ARTRV/FEID Ecological Site inclusions within the dominant low sagebrush matrix and three SG HAs were located in the Shallow Claypan ARAR8/FEID Ecological Site. This ecological site (and inclusions) constitutes a majority of the usable sage-grouse habitat (based on cover types/ecological sites) within the pasture (approximately 87 percent of shrub steppe acres; see Table WDLF-3 above), and therefore is representative of the conditions that predominate within pasture 2. Three of the five SG HA were not conducted at the appropriate time of year. Although some issues were identified within the mountain big sagebrush sites (see narratives and figures below) indicators of breeding habitat conditions within pasture 2 support a Suitable rating overall.

- **07S02W28a-2012, 07S02W28b-2012,** and **07S02W34a-2012 (R025XY010ID)**
  Suitable. This ecological site is on the lower end of the suitable rating because most of the primary and supplemental indicators fell within the suitable range (sagebrush components, forb diversity and abundance; Figure WDLF-7). However, a few important indicators, (perennial grass and forb CC and height) were in the marginal range and may not be providing adequate perennial vertical herbaceous understory nesting cover at times. Co-dominance of *Poa* sp. may be limiting nesting cover and indicative of a transition to a different phase within the reference state. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability. Although one transect was not conducted at the appropriate time of year, many of the components necessary for suitable breeding habitat fall within the similar ranges as those sites that were surveyed at the appropriate time (forb diversity and abundance in particular). Forbs would be expected to be diverse and abundant earlier in the spring when soil moisture would be higher; therefore, this data is included in the present breeding habitat assessment.
- **07S02W34b-2012** and **07S02W34c-2012 (R025XY022ID)**
  Marginal (*provisionally*). Although transects were not conducted at the appropriate time of year, it appears that breeding habitat within the ecological site would provisionally fall on the upper end of marginal (Figure WDLF-8). Sagebrush growth form and perennial herbaceous understory CC fall within the suitable range. However, several issues are evident such as excessive sagebrush CC and height and unsuitable perennial herbaceous understory vegetation heights. In combination, these areas may not be providing adequate nesting cover although spreading growth form may ameliorate this slightly and conditions might be better during the nesting season if low grass heights in summer are due to recent grazing. Forb diversity and abundance is adequate and it is possible that conditions may be more favorable earlier in the spring when soil moisture is more abundant and available. JUOC encroachment is ongoing and could be a greater issue in the future. These sites typically are near juniper woodlands, but do afford homogeneous sagebrush stands that are not intermixed with trees.

Brood-rearing and Summer Riparian Habitats
Although pasture 2 contains several ephemeral/intermittent stream valleys, none appear to support woody or herbaceous riparian vegetation or sage-grouse early/late brood-rearing and summer riparian habitats. Although Rock Creek occurs in the pasture, it is located in a narrow, deep canyon thus limiting sage-grouse usage.

Toy Seep is located in pasture 2 and was assessed as NF in 2004. Disturbance was described as extreme and riparian vegetation is absent; and therefore, is not providing suitable early/late brood-rearing and summer riparian habitats for sage-grouse.

In general, the singular riparian habitat available to and most likely used by sage-grouse (Toy Seep) is not providing adequate early/late brood-rearing and summer riparian habitats. The majority of water is diverted to a trough surrounded by a heavily disturbed area and succulent vegetation is sparse if it exists at all.

Upland Summer Habitat
Five SG HAs were used to assess upland summer habitat conditions within pasture 2 (Map WDLF-5B). Two SG HAs were located within what appear to be Loamy 16+" ARTRV/FEID Ecological Site inclusions within the dominant low sagebrush matrix and three SG HAs were located in the Shallow Claypan ARAR8/FEID Ecological Site. This ecological site (and inclusions) constitutes a majority of the usable sage-grouse habitat (based on cover types/ecological sites) within the pasture (approximately 87 percent of shrub steppe acres; see Table WDLF-3 above), and therefore is representative of the conditions that predominate within pasture 2. Two of the five SG HA where not conducted at the appropriate time of year. Although some issues were identified within the mountain big sagebrush sites (see narratives and figures below) indicators of upland summer habitat conditions within pasture 2 support a Suitable rating overall.

- **07S02W28a-2012, 07S02W28b-2012,** and **07S02W34a-2012 (R025XY010ID)**
  Suitable (*provisionally*). Upland summer habitat in the pasture in this ecological site is provisionally rated as suitable because several of the most important primary indicators (forb abundance and diversity) and all of the supplementary indicators fall within the suitable ranges (Figure WDLF-9). Although two transects were not surveyed at the appropriate time, forb diversity was high in the spring, and because of site elevations, would probably still have appropriate soil moisture in the summer to provide continued forb forage in the summer. Sagebrush height is slightly low and perennial herbaceous understory CC was in the marginal range. The higher representation of *Poa* species canopy cover is probably occurring at the expense of deep-rooted, tall structured, perennial bunchgrasses that have lower canopy cover representation than expected for the ecological site. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability.
- **07S02W34b-2012** and **07S02W34c-2012 (R025XY022ID)**
  Suitable. This ecological site is on the lower end of the suitable rating. Some of the primary indicators are within the marginal ranges (sagebrush CC, height), and supplementary indicators (perennial herbaceous vegetation heights) indicate that there may be some issues

with concealment cover (Figure WDLF-10). Forb diversity and abundance is adequate, but may be inhibited by excessive shrub CC. JUOC encroachment is ongoing and could be a greater issue in the future. Herbaceous components could possibly be improved with mechanical treatments of juniper and excessive shrub cover.

Winter Habitat

Five SG HAs were used to assess winter habitat conditions within pasture 2 (Map WDLF-5B). Two SG HAs were located within what appear to be Loamy 16+" ARTRV/FEID Ecological Site inclusions within the dominant low sagebrush matrix and three SG HAs were located in the Shallow Claypan ARAR8/FEID Ecological Site. This ecological site (and inclusions) constitutes a majority of the usable sage-grouse habitat (based on cover types/ecological sites) within the pasture (approximately 87 percent of shrub steppe acres; see Table WDLF-3 above), and therefore is representative of the conditions that predominate within pasture 2. Overall winter habitat in the pasture was rated as Suitable.

- **07S02W28a-2012, 07S02W28b-2012,** and **07S02W34a-2012 (R025XY010ID)**
  Suitable. Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow (Figure WDLF-11). Sagebrush CC provides adequate concealment and thermal cover also.
- **07S02W34b-2012** and **07S02W34c-2012 (R025XY022ID)**
  Suitable. Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow (Figure WDLF-12). Sagebrush and other shrub CC are providing adequate concealment and thermal cover. JUOC encroachment might be limiting use if these are providing habitat for predators.

Pasture 3

Habitat Characteristics

Although the majority of pasture 3 is located outside of seasonal ranges of the Owyhee Front/Triangle local population, a small portion of the is located within the breeding and upland summer ranges (Map WDLF-6). The low sagebrush ecological site within these areas supports breeding (including early brood-rearing), and upland summer (including late-brood rearing) sage-grouse habitat. In addition, a few lentic and lotic sites provide riparian summer habitat. A small area in the northern portion of the pasture is classified as key habitat and surrounded by an area classified as conifer encroachment; however, the majority of pasture is classified as non-habitat (Maps WDLF-4 and WDLF-5B).

Breeding Habitat

One SG HA was used to assess breeding habitat conditions within pasture 3 (Map WDLF-5B). The SG HA located within the Shallow Claypan ARAR8/FEID Ecological Site. Because this ecological site constitutes the majority of currently usable sage-grouse habitat (other areas and potentially usable ecological sites within the pasture are dominated by dense juniper woodlands), it is representative of the usable habitat conditions that predominate within pasture 3. Although many indicators would appear to provide suitable habitats, juniper encroachment and surrounding woodlands are severely limiting the ability of the pasture to provide suitable sage-

grouse habitats (see narrative below). Therefore, breeding habitat in pasture 3 is rated as Marginal.

- **07S02W31-2012 (R025XY010ID)**
  Marginal. This ecological site is rated marginal because although most primary and supplementary indicators fell within the suitable range, JUOC encroachment and surrounding woodlands are limiting the suitability of the area (Figure WDLF-13). In addition, perennial herbaceous understory heights were marginal and sagebrush growth form was mixed which may be limiting nesting cover. Although horizontal nesting cover indicators (sagebrush CC and height, perennial herbaceous understory CC) are adequate and forb diversity and abundance are providing adequate forage, JUOC woodlands are limiting habitat suitability for breeding sage-grouse.

Brood-rearing and Summer Riparian Habitats
Although pasture 3 is traversed by Louisa Creek and various ephemeral/intermittent stream valleys, the extremity of juniper encroachment and density of juniper woodlands, especially in drainages, is severely limiting sage-grouse usage. Although pasture 3 is not known to contain any spring-associated lentic riparian/wetland areas, juniper woodlands are most likely also restricting any use by sage-grouse.

In general, pasture 3 does not currently appear to be providing any useable early/late brood-rearing and summer riparian habitats for sage-grouse due to the scarcity of the resource and the expansion and density of juniper woodlands in the pasture.

Upland Summer Habitat
One SG HA was used to assess upland summer habitat conditions within pasture 3 (Map WDLF-5B). The SG HA located within the Shallow Claypan ARAR8/FEID Ecological Site. Because this ecological site constitutes the majority of currently usable sage-grouse habitat (other areas and potentially usable ecological sites within the pasture are dominated by dense juniper woodlands), it is representative of the usable habitat conditions that predominate within pasture 3. Although many indicators would appear to provide suitable habitats, juniper encroachment and surrounding woodlands are severely limiting the ability of the pasture to provide suitable sage-grouse habitats (see narrative below). Regardless that the SG HA was not conducted at the appropriate time of year, upland summer habitat in pasture 3 is provisionally rated as Marginal.

- **07S02W31-2012 (R025XY010ID)**
  Marginal (*provisionally*). Although assessment was not conducted at the appropriate time, this ecological site is provisionally rated marginal primarily because JUOC encroachment and surrounding woodlands are limiting the suitability of the area (Figure WDLF-14). In addition, forb diversity and abundance may not be adequate later in the season when less soil moisture would be available. Nevertheless, overall concealment cover indicators appear to be adequate but JUOC woodlands are limiting habitat suitability for upland summer use.

Pasture 4
Habitat Characteristics

Although the seasonal range models of the Owyhee Front/Triangle local population identified a very small area in the northwestern portion of the pasture as breeding range, pasture 4 is dominated by dense juniper woodlands and currently does not provide usable sage-grouse habitat (Map WDLF-6). In addition, the entire pasture is classified as non-habitat (Maps WDLF-4 and WDLF-5B).

Redband Trout

Redband trout occupy three creeks within Louisa Creek Allotment. Table B8-1 summarizes the Proper Functioning Condition and IDEQ criteria rating for Cold Water Aquatic Life (CWAL) and Salmonid Spawning (SS). The streams that rated FAR static are unsatisfactory for redband trout habitat. In general, the temperatures of surface water exceed criteria redband trout.

Table B8-1: Redband trout occupied Creeks

Pasture – length/miles	Creek	PFC/trend	CWAL IDEQ *	SS IDEQ *
1 – 1.0	NF Castle	FAR upward	Not supporting	Not assessed
1 – 0.1	NF Castle	FAR static	Not supporting	Not assessed
2 – 1.4	Rock	PFC	Supporting	Not assessed
2 – 0.6	Rock	FAR static	Supporting	Not assessed
3 – 2.6	Louisa	FAR static	Not supporting	Not assessed

* BLM temperature recorders – 2001, 2002, & 2004. Data indicates temperatures exceed CWAL and SS criteria in all creek and pastures except NF Castle in Pasture 1, which meet criteria for SS.

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Redband Trout

In 2011, a draft assessment of redband trout habitats and riparian condition in the Owyhee Basin of Nevada, Idaho, and Oregon was produced with support from Nevada BLM (Fesenmeyer, Mayfield, Haak, & Shives, 2011). The basin-wide habitat condition assessment uses a Conservation Success Index (CSI) which provides an analytical tool focused on cold-water conservation planning at the sub-watershed scale (6^{th} level HUC; (Williams, Haak, Gillespie, & Colyer, 2007), (Trout Unlimited, 2009)). The CSI summarizes data for species-specific analyses related to population metrics, anthropogenic stressors, and environmental conditions, and assigns a categorical score (1-5, reflecting poor through exceptional condition) based on a suite of indicators.

As stated in the 2006 RHA above, redband trout occur within several streams that cross the allotment (Map WDLF-7).

A review of the preliminary results indicates that the sub-watersheds that intersect the majority of the allotment (Middle Rock Creek and North Fork Castle Creek) have moderate to high total population and habitat integrity scores, and a moderate to moderately high total CSI score (Fesenmeyer, Mayfield, Haak, & Shives, 2011). Future security indicators (factors related to land conversion, resource extraction, energy development, climate changes, sedimentation, and introduced species) that negatively affected the total CSI score can be identified to develop management actions to increase the probability of redband trout persistence within the allotment.

Other Species
Columbia spotted frog occupied habitat discovered during survey. Pygmy rabbit surveyed, no occupied habitat discovered.

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Columbia Spotted Frog

Targeted surveys for spotted frogs in the Louisa Creek allotment were conducted in 1993, 1994, 2007, 2008, 2009, and 2010.

Pasture 1
In 1993, 1994, 2008, 2009 and 2010, surveys were conducted within the Antelope Springs exclosure; no spotted frogs were detected. In 1993 and 1994, surveys were conducted at three locations along North Fork Castle Creek; no spotted frogs were detected.

Pasture 2
In 2007, surveys were conducted at Toy Seep; no spotted frogs were detected.

Pasture 3
In 2010, surveys were conducted at 12 locations along Louisa Creek; four adult spotted frogs were detected at four locations and tadpoles were detected at one location. The tadpoles were detected near the shore of the unnamed reservoir in the center of the pasture. Adults spotted frogs were detected above and below the reservoir. This information provides evidence that spotted frogs are breeding within pasture 3.

Pastures 4, 5, and 6
No spotted frog surveys have been conducted in pastures 4, 5, and 6.

With the exception of one breeding site, the majority of survey efforts within the allotment did not detect occupied spotted frog habitat. Nevertheless, spotted frogs are known to occupy the five sub-watersheds (6^{th} level HUC) that intersect Louisa Creek pastures (North Fork Castle Creek, Upper Rock Creek, Middle Rock Creek, Josephine Creek, Hurry Back Creek; Map WDLF-7).

Although the majority of riparian habitats in this allotment are functioning-at-risk, Louisa Creek and its unnamed reservoir in pasture 3 appear to support riparian habitat that are at least minimally adequate to provide for the needs of breeding spotted frogs.

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Figure WDLF-1: Summary of breeding SG HA in Louisa Creek pasture 1 in the Shallow Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	R025XY010ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 1	**Allotment-Pasture Number:**	0601-01	**Number of Transects:**	3	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow Claypan 12-16 ARAR8/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O541,2O557, 2O619
0601-01-07S02W20-2012	ARAR/FEID		25	5/31/2012			
0601-01-07S02W29a-2012	ARAR/FEID		15	5/31/2012		**Site Info:**	Arid
0601-01-07S02W29b-2012	ARAR/POSE		30	7/23/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**32.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**35.6**	 40-80 cm 30-80 cm	X	 20-<40 cm or >80 cm 20-<30 cm or >80 cm		 <20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)	**12.6**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**12.7**	 ≥15% ≥10%	X	 5-<15% 5-<10%		 <5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**7.3**	 ≥10% ≥5%	X	 5-<10% 3-<5%		 <5% <3%	
Preferred Forb Availability (relative to site potential)	**Abundant**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**9.3**		14 sp. total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site Potential
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate based on Ecological Site Potential
Sagebrush and Other Shrub Canopy Cover (mean)	**32.0**	Suitable	Suitable breeding habitat should be ≤42% total shrub CC
Sagebrush and Other Shrub Height (mean)	**35.6**	Suitable	Suitable breeding habitat should have shrub heights between 30-80 cm
Perennial Grass Height (excluding Poa spp.) (mean)	**10.6**	Marginal	Suitable breeding habitat should have perennial grass height of at least 18 cm
Poa Spp. Canopy Cover (mean)	**19.3**	Suitable	Somewhat higher than expected for Ecological Site; possibly indicative of shifting community composition (State 1A to 1C or 1E) usually at the expense of deep-rooted, tall-structured perennial species
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site Potential
Annual Forb Canopy Cover (mean)	**1.3**	Suitable	Appropriate based on Ecological Site Potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**18.7**	Suitable	Appropriate based on Ecological Site Potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Scat observed at 07S02W29b-2012
Evidence of recent livestock use?	Cattle present in pasture

Rationale for Overall Suitability Rating: This ecological site is on the lower end of the suitable rating because most of the primary and supplemental indicators fell within the suitable range (sagebrush height, perennial grass and forb CC, forb diversity and abundance). However, a few important indicators, (perennial grass and forb height in particular) were in the marginal range and may not be providing adequate perennial vertical herbaceous understory nesting cover. In addition, the current low heights of co-dominant *Poa* sp. are not providing additional cover. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability. Although one transect was not conducted at the appropriate time of year, many of the components necessary for suitable breeding habitat fall within the similar ranges as those sites that were surveyed at the appropriate time (forb diversity and abundance in particular). Forbs would be expected to be diverse and abundant earlier in the spring when soil moisture would be higher, therefore, this data is included in the present breeding habitat assessment.

Site-Scale Suitability	**Suitable**	**Marginal**	**Unsuitable**
	X		

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Figure WDLF-2: Summary of breeding SG HA in Louisa Creek pasture 1 in the Loamy 13-16" ARTRV/PSSPS-FEID Ecological Site (2012)

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	R025XY011ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 1	**Allotment-Pasture Number:**	0601-01	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY011ID	**Ecological Site Name:**	Loamy 13-16 ARTRV/PSSPS-FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	20541, 20557, 20619
0601-01-07S02W21-2012	ARTRV/FEID-SIHY		5	7/23/2012			
0601-01-07S02W22-2012	ARTRV/POSE		3	7/10/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**29.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**74.0**	 40-80 cm 30-80 cm	X	 20-<40 cm or >80 cm 20-<30 cm or >80 cm		 <20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Spreading**	Spreading	X	Mix of Spreading and Columnar		Columnar	
Perennial Grass and Forb Height (mean)	**19.0**	≥18 cm	X	10-18 cm		<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**25.0**	 ≥15% ≥10%	X	 5-<15% 5-<10%		 <5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**7.0**	 ≥10% ≥5%		 5-<10% 3-<5%	X	 <5% <3%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**3.5**				7 sp. Total		

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**15.0**	Suitable	Appropriate based on Ecological Site Potential
Other Shrub Height (mean)	**78.7**	Suitable	Appropriate based on Ecological Site Potential
Sagebrush and Other Shrub Canopy Cover (mean)	**44.0**	Marginal	Suitable breeding habitat should be ≤42% total shrub CC
Sagebrush and Other Shrub Height (mean)	**71.5**	Suitable	Suitable breeding habitat should have shrub heights between 40-80 cm
Perennial Grass Height (excluding Poa spp.) (mean)	**16.6**	Marginal	Suitable breeding habitat should have perennial grass height ≥18 cm
Poa Spp. Canopy Cover (mean)	**27.0**	Marginal	As a co-dominant understory species, indicative of a shift in community composition (State 1A to 1C); higher representation than expected, usually at the expense of deep-rooted, tall-structured perennial species
Annual Grass Canopy Cover (mean)	**1.0**	Suitable	Appropriate based on Ecological Site Potential
Annual Forb Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site Potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**17.0**	Suitable	Appropriate based on Ecological Site Potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Two female sage-grouse observed approx. 0.25 miles away noted at 07S02W22
Evidence of recent livestock use?	Recent utilization noted at 07S02W21
Rationale for Overall Suitability Rating:	Although transects were not conducted at the appropriate time of year, it appears that breeding habitat within the ecological site would provisionally fall on the lower end of suitable. Sagebrush components (CC, height, and growth form) and perennial herbaceous understory vertical cover appear to be adequate to provide nesting cover. Forb diversity is relatively low as is abundance; it is not clear if this is an artifact of the timing of the survey and/or the lack of conducting a belt transect at one of the transect sites. Total shrub and *Poa* sp. CC was slightly high which may be inhibiting herbaceous understory growth.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	P		

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Figure WDLF-3: Summary of upland summer SG HA in Louisa Creek pasture 1 in the Shallow

Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	R025XY010ID			
Allotment-Pasture Names	Louisa Creek-Louisa Creek 1	**Allotment-Pasture Number:**	0601-01	**Number of Transects:**	3	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow Claypan 12-16 ARAR8/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O541,2O557, 2O619
0601-01-07S02W20-2012	ARAR/FEID		25	5/31/2012			
0601-01-07S02W29a-2012	ARAR/FEID		15	5/31/2012		**Site Info:**	Arid
0601-01-07S02W29b-2012	ARAR/POSE		30	7/23/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**32.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**35.6**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**20.0**	≥15%	X	5-15%		<5%	
Preferred Forb Availability (relative to site potential)	**Abundant**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**9.3**		14 sp. total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Mixed**	Suitable	Although the majority of plants fell in mixed, most of the remaining were in spreading; therefore, shrub growth form is probably providing adequate concealment cover
Perennial Grass and Forb Height (mean)	**12.6**	Suitable	Suitable upland summer habitat should have perennial herbaceous vegetation heights of at least 10 cm to provide some concealment cover.
Perennial Grass Canopy Cover (mean)	**12.7**	Suitable	Lower than expected based on Ecological Site potential; possibly indicative of shifting community composition (State 1A to 1C or 1E) usually due to increase in *Poa* sp. CC
Perennial Forb Canopy Cover (mean)	**7.3**	Suitable	Belt transect reveals abundant and diverse forb component relative to Ecological Site potential
Other Shrub Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	**0.0**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Canopy Cover (mean)	**32.0**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Height (mean)	**35.6**	Suitable	Appropriate based on Ecological Site potential
Perennial Grass Height (excluding Poa spp.) (mean)	**10.6**	Suitable	Suitable upland summer habitat should have perennial grass heights of at least 10 cm to provide some concealment cover.
Poa Spp. Canopy Cover (mean)	**19.3**	Suitable	Somewhat higher than expected for Ecological Site; possibly indicative of shifting community composition (State 1A to 1C or 1E) usually at the expense of deep-rooted, tall-structured perennial species
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site potential
Annual Forb Canopy Cover (mean)	**1.3**	Suitable	Appropriate based on Ecological Site potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**18.7**	Suitable	Appropriate based on Ecological Site potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Scat observed at 07S02W29b-2012
Evidence of recent livestock use?	Cattle present in pasture

Rationale for Overall Suitability Rating: Upland summer habitat in the pasture in this ecological site is rated as suitable because several of the most important primary indicators (forb abundance and diversity) and all of the supplementary indicators fall within the suitable ranges. Although two transects were not surveyed at the appropriate time, forb diversity was high in the spring, and because of site elevations, would probably still have appropriate soil moisture in the summer to provide continued forb forage in the summer. Sagebrush cover is slightly high and height is slightly low. However, the higher representation of *Poa* species canopy cover is probably occurring at the expense of deep-rooted, tall structured, perennial bunchgrasses that have lower canopy cover representation than expected for the ecological site. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	P		

Figure WDLF-4: Summary of upland summer SG HA in Louisa Creek pasture 1 in the Loamy 13-16" ARTRV/PSSPS-FEID Ecological Site (2012)

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	R025XY011ID			
Allotment-Pasture Names	Louisa Creek-Louisa Creek 1	Allotment-Pasture Number:	0601-01	Number of Transects:	2	Subpopulation:	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY011ID	Ecological Site Name:	Loamy 13-16 ARTRV/PSSPS-FEID			Home Range Name:	Owyhee Front/Triangle
Site IDs:	Land Cover Type/s:		Area Sampled (ha):	Date:		Associated Leks:	20541, 20557, 20619
0601-01-07S02W21-2012	ARTRV/FEID-SIHY		5	7/23/2012			
0601-01-07S02W22-2012	ARTRV/POSE		3	7/10/2012		Site Info:	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	29.0	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	74.0	40-80 cm	X	20-<40 cm or >80 cm		<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	32.0	≥15%	X	5-15%		<5%	
Preferred Forb Availability (relative to site potential)	Common	Preferred forbs are common with several species present		Preferred forbs are common but only a few species are present	X	Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	3.5				7 sp. total		

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	Spreading	Suitable	Spreading sagebrush growth form provides adequate concealment cover
Perennial Grass and Forb Height (mean)	19.0	Suitable	Suitable upland summer habitat should have perennial herbaceous vegetation height ≥10 cm
Perennial Grass Canopy Cover (mean)	25.0	Suitable	Appropriate based on Ecological Site potential
Perennial Forb Canopy Cover (mean)	7.0	Marginal	Suitable upland summer habitat should have abundant and diverse forb representation normally above ≥10%
Other Shrub Canopy Cover (mean)	15.0	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	78.7	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Canopy Cover (mean)	44.0	Marginal	Slightly higher representation than expected at HCPC reference conditions
Sagebrush and Other Shrub Height (mean)	71.5	Suitable	Suitable upland summer habitat should have shrub heights between 40-80 cm
Perennial Grass Height (excluding Poa spp.) (mean)	16.6	Suitable	Suitable upland summer habitat should have perennial herbaceous vegetation height ≥10 cm
Poa Spp. Canopy Cover (mean)	27.0	Marginal	As a co-dominant understory species, indicative of a shift in community composition (State 1A to 1C); higher representation than expected, usually at the expnse of deep-rooted, tall-structured perennial species
Annual Grass Canopy Cover (mean)	1.0	Suitable	Appropriate based on Ecological Site potential
Annual Forb Canopy Cover (mean)	0.0	Suitable	Appropriate based on Ecological Site potential
Bare Ground Canopy Cover (relative to site potential) (mean)	17.0	Suitable	Appropriate based on Ecological Site potential

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	unknown-not noted
Evidence of recent livestock use?	unknown-not noted

Rationale for Overall Suitablity Rating:	This ecological site is on the lower end of the suitable rating. Although some of the primary indicators are within the marginal ranges (sagebrush CC, forb diversity and abundance), concealment cover components appear to be adequate. Forb diversity is somewhat low as is abundance; it is not clear if this is due to the lack of conducting a belt transect at one of the transect sites. Total shrub and *Poa* sp. CC was slightly high which may be inhibiting herbaceous understory growth.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability	X		

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Figure WDLF-5: Summary of winter SG HA in Louisa Creek pasture 1 in the Shallow Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY010ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 1	Allotment-Pasture Number:	0601-01	Number of Transects:	3	Subpopulation:	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	Ecological Site Name:	Shallow Claypan 12-16 ARAR8/FEID			Home Range Name:	Owyhee Front/Triangle
Site IDs:	Land Cover Type/s:		Area Sampled (ha):	Date:		Associated Leks:	2O541,2O557, 2O619
0601-01-07S02W20-2012	ARAR/FEID		25	5/31/2012			
0601-01-07S02W29a-2012	ARAR/FEID		15	5/31/2012		Site Info:	Arid
0601-01-07S02W29b-2012	ARAR/POSE		30	7/23/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	32.0	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	35.6	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	Mixed	Suitable	Although the majority of plants fell in mixed, most of the remaining were in spreading; therefore, shrub growth form is probably providing adequate concealment cover
Other Shrub Canopy Cover (mean)	0.0	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	0.0	Suitable	Other shrub heights are providing additional concealment and thermal cover
Sagebrush and Other Shrub Canopy Cover (mean)	32.0	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Height (mean)	35.6	Suitable	Sagebrush height is providing available forage, and in combination with other shrub height is providing effective concealment cover

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	Scat observed at 07S02W29b-2012
Evidence of recent livestock use?	Cattle present in pasture

Rationale for Overall Suitability Rating:	Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow. Sagebrush CC provides adequate concealment and thermal cover also.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability	X		

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Figure WDLF-6: Summary of winter SG HA in Louisa Creek pasture 1 in the Loamy 13-16" ARTRV/PSSPS-FEID Ecological Site (2012)

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY011ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 1	**Allotment-Pasture Number:**	0601-01	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY011ID	**Ecological Site Name:**	Loamy 13-16 ARTRV/PSSPS-FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	20541, 20557, 20619
0601-01-07S02W21-2012	ARTRV/FEID-SIHY		5	7/23/2012			
0601-01-07S02W22-2012	ARTRV/POSE		3	7/10/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**29.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**74.0**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading**	Suitable	Spreading sagebrush growth form provides adequate concealment cover
Other Shrub Canopy Cover (mean)	**15.0**	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	**78.7**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Canopy Cover (mean)	**44.0**	Suitable	Total shrub CC is providing effective concealment and thermal cover
Sagebrush and Other Shrub Height (mean)	**71.5**	Suitable	Total shrub height is providing effective concealment and thermal cover

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	unknown-not noted
Evidence of recent livestock use?	unknown-not noted

Rationale for Overall Suitablity Rating:	Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow. Sagebrush and other shrub CC is providing adequate concealment and thermal cover.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

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Figure WDLF-7: Summary of breeding SG HA in Louisa Creek pasture 2 in the Shallow Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	R025XY010ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 2	**Allotment-Pasture Number:**	0601-02	**Number of Transects:**	3	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow Claypan 12-16 ARAR8/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O541,2O557, 2O619
0601-02-07S02W28a-2012	ARAR-JUOC/POSE		20	5/31/2012			
0601-02-07S02W28b-2012	ARAR/POSE		5	7/24/2012		**Site Info:**	Arid
0601-02-07S02W34a-2012	ARAR/POSE-FEID		40	5/31/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**24.7**	15-25%	X	5-<15% or >25%		<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**30.3**	 40-80 cm 30-80 cm	X	 20-<40 cm or >80 cm 20-<30 cm or >80 cm		 <20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Spreading**	Spreading	X	Mix of Spreading and Columnar		Columnar	
Perennial Grass and Forb Height (mean)	**13.6**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**8.0**	 ≥15% ≥10%		 5-<15% 5-<10%	X	 <5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**2.0**	 ≥10% ≥5%		 5-<10% 3-<5%		 <5% <3%	X
Preferred Forb Availability (relative to site potential)	**Abundant**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**9.3**		17 sp. total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**4.0**	Suitable	Appropriate based on Ecological Site Potential
Other Shrub Height (mean)	**98.2**	Suitable	Appropriate based on Ecological Site Potential; influenced by JUOC
Sagebrush and Other Shrub Canopy Cover (mean)	**28.7**	Suitable	Suitable breeding habitat should be ≤42% total shrub CC
Sagebrush and Other Shrub Height (mean)	**63.2**	Suitable	Suitable breeding habitat should have shrub heights between 30-80 cm
Perennial Grass Height (excluding Poa spp.) (mean)	**14.7**	Marginal	Suitable breeding habitat should have perennial grass height of at least 18 cm
Poa Spp. Canopy Cover (mean)	**21.3**	Suitable	Somewhat higher than expected for Ecological Site; possibly indicative of shifting community composition (State 1A to 1C or 1E) usually at the expense of deep-rooted, tall-structured perennial species
Annual Grass Canopy Cover (mean)	**0.7**	Suitable	Appropriate based on Ecological Site Potential
Annual Forb Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site Potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**10.0**	Suitable	Appropriate based on Ecological Site Potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
				X			

Evidence of sage-grouse use?	Scat observed at 07S02W29a and 07S02W34a
Evidence of recent livestock use?	Unknown-not noted
Rationale for Overall Suitability Rating:	This ecological site is on the lower end of the suitable rating because most of the primary and supplemental indicators fell within the suitable range (sagebrush components, forb diversity and abundance). However, a few important indicators, (perennial grass and forb CC and height) were in the marginal range and may not be providing adequate perennial vertical herbaceous understory nesting cover at times. Co-dominance of *Poa* sp. may be limiting nesting cover and indicative of a transition to a different phase within the reference state. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability. Although one transect was not conducted at the appropriate time of year, many of the components necessary for suitable breeding habitat fall within the similar ranges as those sites that were surveyed at the appropriate time (forb diversity and abundance in particular). Forbs would be expected to be diverse and abundant earlier in the spring when soil moisture would be higher, therefore, this data is included in the present breeding habitat assessment.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	X		

Figure WDLF-8: Summary of breeding SG HA in Louisa Creek pasture 2 in the Loamy 16+" ARTRV/FEID Ecological Site (2012)

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	R025XY022ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 2	**Allotment-Pasture Number:**	0601-02	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY022ID	**Ecological Site Name:**	Loamy 16+ ARTRV/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	20541, 20557, 20619
0601-02-07S02W34b-2012	ARTRV/FEID		5	7/24/2012			
0601-02-07S02W34c-2012	ARTRV/SIHY-FEID		20	7/24/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**50.0**	15-25%		5-<15% or >25%	X	<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**99.9**	40-80 cm 30-80 cm		20-<40 cm or >80 cm 20-<30 cm or >80 cm	X	<20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Spreading**	Spreading	X	Mix of Spreading and Columnar		Columnar	
Perennial Grass and Forb Height (mean)	**9.6**	≥18 cm		10-18 cm		<10 cm	X
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**25.0**	≥15% ≥10%	X	5-<15% 5-<10%		<5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**7.0**	≥10% ≥5%		5-<10% 3-<5%	X	<5% <3%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**7.5**		11 sp. total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Appropriate based on Ecological Site Potential
Other Shrub Height (mean)	**23.8**	Suitable	Appropriate based on Ecological Site Potential
Sagebrush and Other Shrub Canopy Cover (mean)	**66.0**	Marginal	Suitable breeding habitat should be ≤42% total shrub CC; slightly higher representation than expected at HCPC reference conditions
Sagebrush and Other Shrub Height (mean)	**81.4**	Marginal	Suitable breeding habitat should have shrub heights between 40-80 cm; other shrubs actually bring the mean down; excessive height due to ARTRV
Perennial Grass Height (excluding Poa spp.) (mean)	**9.2**	Unsuitable	Suitable breeding habitat should have perennial grass height ≥18 cm; marginal habitat should have height ≥10 cm
Poa Spp. Canopy Cover (mean)	**7.0**	Suitable	Appropriate based on Ecological Site Potential
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site Potential
Annual Forb Canopy Cover (mean)	**1.0**	Suitable	Appropriate based on Ecological Site Potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**15.0**	Suitable	Appropriate based on Ecological Site Potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Unknown-not noted
Evidence of recent livestock use?	Recent utilization noted

Rationale for Overall Suitability Rating:	Although transects were not conducted at the appropriate time of year, it appears that breeding habitat within the ecological site would provisionally fall on the upper end of marginal. Sagebrush growth form and perennial herbaceous understory CC fall within the suitable range. However, several issues are evident such as excessive sagebrush CC and height and unsuitable perennial herbaceous understory vegetation heights. In combination, these areas may not be providing adequate nesting cover although spreading growth form may ameliorate this slightly and conditions might be better during the nesting season if low grass heights in summer are due to recent grazing. Forb diversity and abundance is adequate and it is possible that conditions may be more favorable earlier in the spring when soil moisture is more abundant and available. JUOC encroachment is ongoing and could be a greater issue in the future. These sites typically are near juniper woodlands, but do afford homogeneous sagebrush stands that are not intermixed with trees.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		P	

Figure WDLF-9: Summary of upland summer SG HA in Louisa Creek pasture 2 in the Shallow Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	R025XY010ID			
Allotment-Pasture Names	Louisa Creek-Louisa Creek 2	**Allotment-Pasture Number:**	0601-02	**Number of Transects:**	3	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow Claypan 12-16 ARAR8/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O541,2O557, 2O619
0601-02-07S02W28a-2012	ARAR-JUOC/POSE		20	5/31/2012			
0601-02-07S02W28b-2012	ARAR/POSE		5	7/24/2012		**Site Info:**	Arid
0601-02-07S02W34a-2012	ARAR/POSE-FEID		40	5/31/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**24.7**	10-25%	X	5-<10% or >25%		<5%	
Sagebrush Height (mean)	**30.3**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**10.0**	≥15%		5-15%	X	<5%	
Preferred Forb Availability (relative to site potential)	**Abundant**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**9.3**		17 sp. total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading**	Suitable	Spreading sagebrush growth form provides adequate concealment cover
Perennial Grass and Forb Height (mean)	**13.6**	Suitable	Suitable upland summer habitat should have perennial herbaceous vegetation heights of at least 10 cm to provide some concealment cover
Perennial Grass Canopy Cover (mean)	**8.0**	Suitable	Lower than expected based on Ecological Site potential; possibly indicative of shifting community composition (State 1A to 1C or 1E) usually due to increase in *Poa* sp. CC
Perennial Forb Canopy Cover (mean)	**2.0**	Suitable	Belt transect reveals abundant and diverse forb component relative to Ecological Site potential
Other Shrub Canopy Cover (mean)	**4.0**	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	**98.2**	Suitable	Appropriate based on Ecological Site potential; influenced by JUOC
Sagebrush and Other Shrub Canopy Cover (mean)	**28.7**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Height (mean)	**63.2**	Suitable	Appropriate based on Ecological Site potential
Perennial Grass Height (excluding Poa spp.) (mean)	**14.7**	Suitable	Suitable upland summer habitat should have perennial grass heights of at least 10 cm to provide some concealment cover
Poa Spp. Canopy Cover (mean)	**21.3**	Suitable	Somewhat higher than expected for Ecological Site; possibly indicative of shifting community composition (State 1A to 1C or 1E) usually at the expense of deep-rooted, tall-structured perennial species
Annual Grass Canopy Cover (mean)	**0.7**	Suitable	Appropriate based on Ecological Site potential
Annual Forb Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**10.0**	Suitable	Appropriate based on Ecological Site potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Scat observed at 07S02W29a and 07S02W34a
Evidence of recent livestock use?	Unknown-not noted

Rationale for Overall Suitability Rating:	Upland summer habitat in the pasture in this ecological site is provisionally rated as suitable because several of the most important primary indicators (forb abundance and diversity) and all of the supplementary indicators fall within the suitable ranges. Although two transects were not surveyed at the appropriate time, forb diversity was high in the spring, and because of site elevations, would probably still have appropriate soil moisture in the summer to provide continued forb forage in the summer. Sagebrush height is slightly low and perennial herbaceous understory CC was in the marginal range. The higher representation of *Poa* species canopy cover is probably occurring at the expense of deep-rooted, tall structured, perennial bunchgrasses that have lower canopy cover representation than expected for the Ecological site. Juniper encroachment is occurring in the pasture and is an issue that currently and in the future will affect habitat suitability.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**P**		

Figure WDLF-10: Summary of upland summer SG HA in Louisa Creek pasture 2 in the Loamy 16+ ARTRV/FEID Ecological Site (2012)

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	R025XY022ID			
Allotment-Pasture Names	Louisa Creek-Louisa Creek 2	**Allotment-Pasture Number:**	0601-02	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY022ID	**Ecological Site Name:**	Loamy 16+ ARTRV/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O541, 2O557, 2O619
0601-02-07S02W34b-2012	ARTRV/FEID		5	7/24/2012			
0601-02-07S02W34c-2012	ARTRV/SIHY-FEID		20	7/24/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**50.0**	10-25%		5-<10% or >25%	X	<5%	
Sagebrush Height (mean)	**99.9**	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	**32.0**	≥15%	X	5-15%		<5%	
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**7.5**		11 sp. Total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading**	Suitable	Spreading sagebrush growth form provides adequate concealment cover
Perennial Grass and Forb Height (mean)	**9.6**	Marginal	Suitable upland summer habitat should have perennial herbaceous vegetation height ≥10 cm
Perennial Grass Canopy Cover (mean)	**25.0**	Suitable	Appropriate based on Ecological Site potential
Perennial Forb Canopy Cover (mean)	**7.0**	Marginal	Suitable upland summer habitat should have abundant and diverse forb representation normally above ≥10%
Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	**23.8**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Canopy Cover (mean)	**66.0**	Marginal	Slightly higher representation than expected at HCPC reference conditions
Sagebrush and Other Shrub Height (mean)	**81.4**	Suitable	Suitable upland summer habitat should have shrub heights between 40-80 cm; other shrubs actually bring the mean down; excessive height due to ARTRV
Perennial Grass Height (excluding Poa spp.) (mean)	**9.2**	Marginal	Suitable upland summer habitat should have perennial herbaceous vegetation height ≥10 cm
Poa Spp. Canopy Cover (mean)	**7.0**	Suitable	Appropriate based on Ecological Site potential
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site potential
Annual Forb Canopy Cover (mean)	**1.0**	Suitable	Appropriate based on Ecological Site potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**15.0**	Suitable	Appropriate based on Ecological Site potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Unknown-not noted
Evidence of recent livestock use?	Recent utilization noted

Rationale for Overall Suitability Rating:	This ecological site is on the lower end of the suitable rating. Some of the primary indicators are within the marginal ranges (sagebrush CC, height), and supplementary indicators (perennial herbaceous vegetation heights) indicate that there may be some issues with concealment cover. Forb diversity and abundance is adequate, but may be inhibited by excessive shrub CC. JUOC encroachment is ongoing and could be a greater issue in the future. Herbaceous components could possibly be improved with mechanical treatments of juniper and excessive shrub cover.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	X		

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Figure WDLF-11: Summary of winter SG HA in Louisa Creek pasture 2 in the Shallow Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY010ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 2	**Allotment-Pasture Number:**	0601-02	**Number of Transects:**	3	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY010ID	**Ecological Site Name:**	Shallow Claypan 12-16 ARAR8/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	2O541,2O557, 2O619
0601-02-07S02W28a-2012	ARAR-JUOC/POSE		20	5/31/2012			
0601-02-07S02W28b-2012	ARAR/POSE		5	7/24/2012		**Site Info:**	Arid
0601-02-07S02W34a-2012	ARAR/POSE-FEID		40	5/31/2012			

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	24.7	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	30.3	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Predominant Sagebrush Shape (mode)	Spreading	Suitable	Spreading growth form is providing adequate concealment cover
Other Shrub Canopy Cover (mean)	4.0	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	98.2	Suitable	Other shrub heights are providing additional concealment and thermal cover; although the average height is influenced by JUOC from 07S02W28a
Sagebrush and Other Shrub Canopy Cover (mean)	28.7	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Height (mean)	63.2	Suitable	Sagebrush height is providing available forage, and in combination with other shrub height is providing effective concealment cover

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
			X				

Evidence of sage-grouse use?	Scat observed at 07S02W29a and 07S02W34a
Evidence of recent livestock use?	Unknown-not noted

Rationale for Overall Suitability Rating:	Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow. Sagebrush CC provides adequate concealment and thermal cover also.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability	X		

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Figure WDLF-12: Summary of winter SG HA in Louisa Creek pasture 2 in the Loamy 16+" ARTRV/FEID Ecological Site (2012)

Form H-6	Sage-grouse Habitat Suitability Worksheet –		WINTER	R025XY022ID			
Allotment-Pasture Names:	Louisa Creek-Louisa Creek 2	**Allotment-Pasture Number:**	0601-02	**Number of Transects:**	2	**Subpopulation:**	NC NV/ SE OR/ SW ID
Ecological Site ID:	R025XY022ID	**Ecological Site Name:**	Loamy 16+ ARTRV/FEID			**Home Range Name:**	Owyhee Front/Triangle
Site IDs:	**Land Cover Type/s:**		**Area Sampled (ha):**	**Date:**		**Associated Leks:**	20541, 20557, 20619
0601-02-07S02W34b-2012	ARTRV/FEID		5	7/24/2012			
0601-02-07S02W34c-2012	ARTRV/SIHY-FEID		20	7/24/2012		**Site Info:**	Mesic

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	x	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**50.0**	>10%	X	5-10%		<5%	
Sagebrush Height above Snow 0 cm snow (annual mean) 15 cm snow (annual mean) 30 cm snow (annual mean)	**99.9**	>25 cm >40 cm >55 cm	X	10-25 cm 25-40 cm 40-55 cm		<10 cm <25 cm <40 cm	

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	x	Suitability	Rationale
Predominant Sagebrush Shape (mode)	**Spreading**	Suitable	Spreading sagebrush growth form provides adequate concealment cover
Other Shrub Canopy Cover (mean)	**16.0**	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	**23.8**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Canopy Cover (mean)	**66.0**	Suitable	Total shrub CC is providing effective concealment and thermal cover
Sagebrush and Other Shrub Height (mean)	**81.4**	Suitable	Total shrub height is providing effective concealment and thermal cover

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
			X				

Evidence of sage-grouse use?	Unknown-not noted
Evidence of recent livestock use?	Recent utilization noted

Rationale for Overall Suitability Rating:	Overall the ecological site within the pasture is rated as suitable winter habitat because the amount (CC) and height of sagebrush would provide forage above persistent snow. Sagebrush and other shrub CC is providing adequate concealment and thermal cover. JUOC encroachment might be limiting use if these are providing habitat for predators.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability	**X**		

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Figure WDLF-13: Summary of breeding SG HA in Louisa Creek pasture 3 in the Shallow Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-3	Sage-grouse Habitat Suitability Worksheet –		BREEDING	0601-03-07S02W31-2012	Louisa Creek-Louisa Creek 3		
Date:	6/7/2012	**County:**	Owyhee	**State:**	Idaho	**Subpopulation:**	NC NV/ SE OR/ SW ID
Evaluators:	Evans, Roseman					**Home Range Name:**	Owyhee Front/Triangle
Legal Description:	T07SR02WS31QSEQQNW					**Associated Leks:**	2O541, 2O557, 2O619
Land Cover Type:	ARAR/FEID					**Ecological Site:**	R025XY010ID
Number of Transects:	1	**Area Sampled (ha):**	3			**Site Info:**	Arid
List UTM Coordinates:							
Starting (NAD83)	531363 E	4735347 N					
Ending (NAD 83)	4735338N	531314E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	X	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	**16.0**	15-25%	X	5-<15% or >25%		<5%	
Sagebrush Height Mesic Site (mean) Arid Site (mean)	**38.4**	 40-80 cm 30-80 cm	X	 20-<40 cm or >80 cm 20-<30 cm or >80 cm		 <20 cm <20 cm	
Predominant Sagebrush Shape (mode)	**Mixed**	Spreading		Mix of Spreading and Columnar	X	Columnar	
Perennial Grass and Forb Height (mean)	**15.2**	≥18 cm		10-18 cm	X	<10 cm	
Perennial Grass Canopy Cover Mesic Site (mean) Arid Site (mean)	**22.0**	 ≥15% ≥10%	X	 5-<15% 5-<10%		 <5% <5%	
Perennial Forb Canopy Cover Mesic Site (mean) Arid Site (mean)	**0.0**	 ≥10% ≥5%		 5-<10% 3-<5%		 <5% <3%	X
Preferred Forb Availability (relative to site potential)	**Common**	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	**8.0**		8 sp. total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	X	Suitability	Rationale
Other Shrub Canopy Cover (mean)	**2.0**	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	**30.0**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Canopy Cover (mean)	**18.0**	Suitable	Appropriate based on Ecological Site potential
Sagebrush and Other Shrub Height (mean)	**37.4**	Suitable	Suitable breeding habitat should have shrub heights between 30-80 cm
Perennial Grass Height (excluding Poa spp.) (mean)	**15.2**	Marginal	Suitable breeding habitat should have perennial grass heights ≥18 cm
Poa Spp. Canopy Cover (mean)	**24.0**	Suitable	As co-dominant understory species, indicative of a shift in community composition (State 1A to 1C); high representation probably at expense of deep-rooted, tall-structured bunchgrass species
Annual Grass Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site potential
Annual Forb Canopy Cover (mean)	**0.0**	Suitable	Appropriate based on Ecological Site potential
Bare Ground Canopy Cover (relative to site potential) (mean)	**48.0**	Suitable	Appropriate based on Ecological Site potential

Does ecological site potential limit suitability potential?	**YES**	**NO**
		X

Drought Condition:	**Extreme Drought**	**Severe Drought**	**Moderate Drought**	**Mid-Range**	**Moderately Moist**	**Very Moist**	**Extremely Moist**
				X			

Evidence of sage-grouse use?	Unknown-not noted
Evidence of recent livestock use?	Unknown-not noted

Rationale for Overall Suitability Rating: This ecological site is rated marginal because although most primary and supplementary indicators fell within the suitable range, JUOC encroachment and surrounding woodlands are limiting the suitability of the area. In addition, perennial herbaceous understory heights were marginal and sagebrush growth form was mixed which may be limiting nesting cover. Although horizontal nesting cover indicators (sagebrush CC and height, perennial herbaceous understory CC) are adequate and forb diversity and abundance are providing adequate forage, JUOC woodlands are limiting habitat suitability for breeding sage-grouse.

	Suitable	**Marginal**	**Unsuitable**
Site-Scale Suitability		**X**	

Figure WDLF-14: Summary of upland summer SG HA in Louisa Creek pasture 3 in the Shallow Claypan 12-16" ARAR8/FEID Ecological Site (2012)

Form H-4	Sage-grouse Habitat Suitability Worksheet –		UPLAND SUMMER	0601-03-07S02W31-2012	Louisa Creek-Louisa Creek 3		
Date:	6/7/2012	County:	Owyhee	State:	Idaho	Subpopulation:	NC NV/ SE OR/ SW ID
Evaluators:	Evans, Roseman					Home Range Name:	Owyhee Front/Triangle
Legal Description:	T07SR02WS31QSEQQNW					Associated Leks:	2O541, 2O557, 2O619
Land Cover Type:	ARAR/FEID					Ecological Site:	R025XY010ID
Number of Transects:	1	Area Sampled (ha):	3			Site Info:	Arid
List UTM Coordinates:							
Starting (NAD83)	531363 E	4735347 N					
Ending (NAD 83)	4735338N	531314E					

Habitat Indicator Suitability Range (Primary)

Habitat Indicator	χ	Suitable	✓	Marginal	✓	Unsuitable	✓
Sagebrush Canopy Cover (mean)	16.0	10-25%	X	5-<10% or >25%		<5%	
Sagebrush Height (mean)	38.4	40-80 cm		20-<40 cm or >80 cm	X	<20 cm	
Perennial Grass and Forb Canopy Cover (mean)	22.0	≥15%	X	5-15%		<5%	
Preferred Forb Availability (relative to site potential)	Common	Preferred forbs are common with several species present	X	Preferred forbs are common but only a few species are present		Preferred forbs are rare	
Number of Preferred Forb Species (*n*)	8.0		8 sp. total				

Habitat Indicator Suitability Range (Supplemental)

Habitat Indicator	χ	Suitability	Rationale
Predominant Sagebrush Shape (mode)	Mixed	Marginal	Mixed sagebrush growth form may not be providing adequate concealment cover
Perennial Grass and Forb Height (mean)	15.2	Suitable	Suitable upland summer habitat should have perennial herbaceous heights ≥10 cm
Perennial Grass Canopy Cover (mean)	22.0	Suitable	Appropriate based on Ecological Site potential
Perennial Forb Canopy Cover (mean)	0.0	Marginal	Suitable upland summer habitat should have perennial forb CC of at least 5%; however, belt transect reveals adequate forb diversity and abundance
Other Shrub Canopy Cover (mean)	2.0	Suitable	Appropriate based on Ecological Site potential
Other Shrub Height (mean)	30.0	Suitable	Suitable upland summer habitat should have shrub heights of at least 30 cm to provide some concealment cover
Sagebrush and Other Shrub Canopy Cover (mean)	18.0	Suitable	Suitable upland summer habitat should have shrub cover of at least 10%
Sagebrush and Other Shrub Height (mean)	37.4	Suitable	Suitable upland summer habitat should have shrub heights of at least 30 cm to provide some concealment cover
Perennial Grass Height (excluding Poa spp.) (mean)	15.2	Suitable	Appropriate based on Ecological Site potential
Poa Spp. Canopy Cover (mean)	24.0	Suitable	As co-dominant understory species, indicative of a shift in community composition (State 1A to 1C); high representation probably at expense of deep-rooted, tall-structured bunchgrass species
Annual Grass Canopy Cover (mean)	0.0	Suitable	Appropriate based on Ecological Site potential
Annual Forb Canopy Cover (mean)	0.0	Suitable	Appropriate based on Ecological Site potential
Bare Ground Canopy Cover (relative to site potential) (mean)	48.0	Suitable	Appropriate based on Ecological Site potential

Does ecological site potential limit suitability potential?	YES	NO
		X

Drought Condition:	Extreme Drought	Severe Drought	Moderate Drought	Mid-Range	Moderately Moist	Very Moist	Extremely Moist
				X			

Evidence of sage-grouse use?	Unknown-not noted
Evidence of recent livestock use?	Unknown-not noted

Rationale for Overall Suitability Rating:	Although assessment was not conducted at the appropriate time, this ecological site is provisionally rated marginal primarily because JUOC encroachment and surrounding woodlands are limiting the suitability of the area. In addition, forb diversity and abundance may not be adequate later in the season when less soil moisture would be available. Nevertheless, overall concealment cover indicators appear to be adequate but JUOC woodlands are limiting habitat suitability for upland summer use.

	Suitable	Marginal	Unsuitable
Site-Scale Suitability		P	

III. Interdisciplinary Team Members

The assessment was prepared by Ecosystem Management, Inc under contract with the Owyhee Field Office, BLM. Owyhee Field Office provided Interdisciplinary Team (ID Team) support and review through various levels of development.

Name	Title	Roles and Responsibilities
Jake Vialpando	Range Management Specialist	ID Team lead, permits, range studies
Kathi Kershaw	Ecologist/Botanist	T & E plants, native plant communities, RHA's
Mike Mathis (retired)	Wildlife Biologist	T & E animals
Raul Trevino	Range Management Specialist	Permits, range studies
Tim Carrigan	Wildlife Biologist	Review
EMI, Inc.	Contractors	Initial Author of Assessment

2013 Supplement to the Lone Tree and Louisa Creek Rangeland Health Standards and Guidelines Assessment

List of reviewers (2013)

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IV. APPENDICES AND MAPS

APPENDIX A: Idaho Standards and Guidelines

Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management

Standard 1: Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:
1. The amount and distribution of ground cover, including litter, for identified ecological site or soil-plant associations are appropriate for site stability.
2. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/ surface sealing, and compaction layers below the soil surface is minimal for soil type and landform.

Standard 2: Riparian-wetland areas are in proper functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow.

Indicators may include, but are not limited to, the following:
1. The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water areas to reduce water temperature, stabilizing shorelines, filtering sediment, aiding in floodplain development, dissipating energy, delaying floodwater, and increasing recharge of groundwater appropriate to site potential.
2. Riparian/wetland vegetation with deep strong binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class and structural diversity of riparian/wetland vegetation is appropriate for the site.
4. Noxious weeds are not increasing.

Standard 3: Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:
1. Stream channels and floodplains dissipate energy of high water flows and transport sediment. Soils support appropriate riparian-wetland species, allowing water movement, sediment filtration, and water storage. Stream channels are not entrenching.
2. Stream width/depth ratio, gradient, sinuosity, and pool, riffle and run frequency are appropriate for the valley bottom type, geology, hydrology, and soils.
3. Streams have access to their floodplains and sediment deposition is evident.

4. There is little evidence of excessive soil compaction on the floodplain due to human activities.
5. Streambanks are within an appropriate range of stability according to site potential.
6. Noxious weeds are not increasing.

Standard 4: Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:
1. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
2. The diversity of native species is maintained.
3. Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur.
4. Noxious weeds are not increasing.
5. Adequate plant litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 5: Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow and the hydrologic cycle.

Indicators may include, but are not limited to, the following:
1. In established seedings, the diversity of perennial species is not diminishing over time.
2. Plant production, seed production, and cover are adequate to enable recruitment when favorable climatic events occur.
3. Noxious weeds are not increasing.
4. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 6: Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Indicators may include, but are not limited to, the following:
1. Noxious weeds are not increasing.
2. Perennial species numbers are being maintained.
3. Native and introduced perennial species are vigorous enough to reproduce when climatic and other environmental conditions are favorable.
4. Litter and standing dead plant material is adequate to replenish soil nutrients relative to site potential.

Standard 7: Surface and groundwater on public lands comply with the Idaho Water Quality Standards.

Indicators may include, but are not limited to, the following:
1. Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Standard 8: Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Indicators may include, but are not limited to, the following:
1. Parameters described in the Idaho Water Quality Standards.
2. Riparian/wetland vegetation with deep, strong, binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.
3. Age class structure diversity or riparian/wetland vegetation is appropriate for the site.
4. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.
5. The diversity of native species is maintained.
6. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.
7. Noxious weeds are not increasing.

Guidelines:

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover to support infiltration, maintain soil moisture storage and stabilize soils.
2. Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions.
3. Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.
4. Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.
5. Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.
6. The development of springs, seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/ paleontological values associated with the water source.

7. Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and streambank morphology and functions. Adverse impacts due to livestock grazing will be addressed.
8. Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types and amounts of soil organisms, plants and animals appropriate to soil type, climate and landform.
9. Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate and landform.
10. Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.
11. Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.
12. Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.
13. On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.
14. Where native communities exist, the conversion to exotic communities after disturbance will be minimized.
15. Use non-native plant species for rehabilitation only in those situations where:
    a. native species are not readily available in sufficient quantities;
    b. native plant species cannot maintain or achieve the standards; or
    c. non-native plant species provide for management and protection of native rangelands

    Include a diversity of appropriate grasses, forbs, and shrubs in rehabilitation efforts.
16. On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to revegetated the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.
17. Carefully consider the effects of new management facilities (e.g., water developments, fences) on healthy and properly functioning rangelands prior to implementation.
18. Use grazing management practices, where feasible, for wildfire control and to reduce the spread of targeted undesirable plants (e.g., cheatgrass, medusahead wildrye, and noxious weeds while enhancing vigor and abundance of desirable native or seeded species.
19. Employ grazing management practices that promote natural forest regeneration and protect reforestation projects until the Idaho Forest Practices Act requirements for timber stand replacement are met.
20. Design management fences to minimize adverse impacts, such as habitat fragmentation, to maintain habitat integrity and connectivity for native plants and animals.

APPENDIX B: Methods

Methods Used to Evaluate Rangeland Health

This section describes methods used to collect data for this assessment. Resources of interest as identified by the Idaho Rangeland Health Standards and Guidelines are assessed to determine whether the pasture or allotment is meeting or making significant progress toward meeting, the applicable standards. The information collected includes data that enables an Interdisciplinary Team (ID Team) to analyze the condition of upland and riparian areas, as well as habitat for wildlife species and areas of concern for special status plants.

Uplands-Rangeland Health Evaluations

Rangeland Health Evaluations as outlined in *BLM technical reference 1734-6 Interpreting Indicators of Rangeland Health*, and other available qualitative and quantitative data are used to determine if rangelands are meeting or making significant progress toward meeting the Standards for Rangeland Health.

The rangeland health evaluation summary worksheet consists of 17 indicators, each of which is rated on the degree of departure from the appropriate ecological site description or ecological reference area. Areas without a nearby reference site are evaluated using familiarity of the area and incorporating the best professional judgment of the evaluators.

The 17 indicators from the summary worksheet are compiled into categories relating to upland areas by Standards 1, 4, and 5. The preponderance of evidence determines the condition of the site.

Nested Plot Frequency Transects and Photo Plots (Trend)

Trend data provides information pertaining to changes in the plant community, such as changes in plant occurrence, vigor, and/or health. Vegetation trend data are collected at permanently located nested plot frequency transect (NPFT) monitoring sites. Frequency and cover data are collected, as well as shrub density where applicable. The methodology used to establish and collect data at these sites is described in detail in *BLM Technical References 1400-4* and *1730-1*.

Frequency data illustrate changes in occurrences of plants and provides information on reproductive capabilities. Cover data describes the percent of ground covered by plant material, biological soil crusts, gravel, rock, and litter (the uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetative material).

Photographs are taken at NPFT sites and at other sites permanently marked for photo plots. At NPFT and photo plot sites, a minimum of three photographs are taken, two general view photos and one close-up photo of the photo plot. The photo plot is sketched to help illustrate species composition, size, and vigor, and is used to verify the photograph.

Shrub density is recorded when shrubs are present, in either 1/100th or 1/200th acre plots, depending on their distribution, and expressed as plants per acre.

Utilization

Utilization data is important in evaluating the effects of grazing and browsing on specific areas of rangeland. Utilization refers to the percentage of annual production (current year's growth) of forage that has been removed by animals throughout the grazing season. It is expressed as a percentage and is used to characterize the total use of vegetation in an area or of individual plant species.

Generally, utilization transects are located at pre-determined key use areas (permanent NPFT locations); however utilization information may be collected anywhere throughout a pasture or allotment.

Numerous methods are available for measuring utilization, some of which include: the Landscape Appearance Method, Key Species Method, Grazed Class Method, Cole Browse Method or Extensive Browse Method (*Interagency Technical Reference 1996 BLM/RS/ST-96/004+1730*). In general, the utilization data used in this assessment were collected using the Key Species Method and the Cole Browse Method.

Riparian/Wetland

A Standard Checklist, outlined in the 1998 BLM *Technical Reference 1737-15, A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas* (flowing water), and other available qualitative and quantitative data are used to determine if riparian areas are meeting Rangeland Health Standards.

The standard checklist consists of 17 indicators that are used to assess the functioning condition of riparian areas. The indicators are compiled into three interlocking attribute categories representing erosion/deposition, hydrologic function, and vegetative status. Status of noxious weeds is also considered when evaluating riparian health.

Spring wetland areas were assessed for proper functioning condition as outlined in *Technical Reference 1737-11, "Process for assessing proper functioning condition for lentic riparian-wetland areas"* (USDI 1994). Lentic areas are defined as wetland-riparian areas adjacent to standing water habitats such as lakes, ponds, seeps, and meadows.

Special Status Animals/Riparian

Riparian special status species' habitats were assessed primarily using information obtained from the riparian/wetland methods described in the above section. While there is no direct correlation between stream functioning condition and special status species habitat, many of the indicators of riparian functionality are also crucial components of habitat for many of the special status and other wildlife species dependent on this habitat type, especially redband trout and neotropical migratory birds and amphibians. The indicators that assess structure, composition and vigor of

hydric (riparian) vegetation are especially important because they also assess the quality and quantity of shade, nesting/breeding habitat, forage, and escape cover.

Upland

The assessment of upland habitats for other special status animal species were conducted primarily using the same data that was obtained from the upland methods described above, which includes Rangeland Health Evaluation Worksheets, trend data (ground cover, species diversity, noxious and invasive plants) and utilization (vigor, production) data. Sage grouse breeding and brood-rearing habitat evaluations were conducted using methodology described in the draft document entitled *"A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Public Lands in Idaho"* (as revised in May, 2001), primarily as a means of evaluating the suitability of the assessment areas as habitat for sage grouse. Although this methodology specifically addresses the habitat requirements of sage grouse, it is also useful in assessing the general health of sagebrush steppe ecosystems and their suitability as habitat for a diversity of other dependent special status species.

Population Surveys and Other Monitoring

Inventory and monitoring data are limited or absent for many of these species; therefore little is known about their distribution, population status or trend within the allotment. Their occurrence within the allotments has been verified through field observation or assumed likely because the allotment falls within the species known range and contains habitat types potentially capable of supporting viable populations of the species. The following is a brief description of surveys and/or monitoring efforts that have been conducted for special status animal species within these allotments.

Sage Grouse

Sage grouse lek (breeding ground) surveys/counts have been conducted periodically by BLM and Idaho Department of Fish and Game biologists since the late 1970s.

Pygmy Rabbits

These surveys consisted of walking through tall, thick big sage habitat, looking for burrows and pellets.

Special Status Plants

BLM files, databases, and maps are reviewed for known occurrences of BLM special status plants. Additionally databases maintained by the Conservation Data Center (CDC) are consulted. Site-specific surveys are conducted by BLM botanical staff prior to construction of projects;

APPENDIX C: Special Status Wildlife Species

A number of species classified as BLM "Sensitive Species" and/or State of Idaho "Species of Special Concern" are known or likely to occur within these allotments. The following table lists these species, their legal status, and their key habitat associations.

Species	Status	Key Habitat Associations
Prairie Falcon (*Falco mexicanus*)	S	Cliff/canyon, big sagebrush, low sagebrush
Ferruginous Hawk (*Buteo regalis*)	S	Cliff, rock outcrop, open juniper, big sagebrush, low sagebrush
Sage Grouse (*Centrocercus urophasianus)*	S	Big sagebrush, low sagebrush, meadow, riparian
Calliope Hummingbird (*Stellula calliope)*	S	Woody riparian, big sagebrush, mountain shrub
Willow Flycatcher (*Empidonax trailii)*	S	Woody riparian, mountain shrub, juniper, big sagebrush
Loggerhead Shrike (*Lanius ludovicianus)*	S, SC	Big sagebrush, open juniper
Brewer's Sparrow (*Spizella breweri)*	S	Big sagebrush
Sage Sparrow (*Amphispiza belli*)	S	Big sagebrush
Spotted Bat (*Euderma maculatum)*	S, SC	Roosting/hibernation: Cliffs, canyons, rock outcrops Foraging: Juniper, sagebrush
Fringed Myotis (*Myotis thysanodes)*	S, SC	Roosting/hibernation: Caves, rock outcrops Foraging: Juniper, sagebrush, meadow
Townsend's Big-eared Bat (*Plecotus townsendii)*	S, SC	Roosting/hibernation: Caves, trees. Foraging: Juniper, sagebrush, canyon.
Western Pipestrelle (*Pipistrellus hesperus)*	SC	Roosting/hibernation: Caves, rock outcrops, burrows near water Foraging: Juniper, sagebrush, canyon
Pygmy Rabbit (*Brachylagus idahoensis)*	S, SC	Big sagebrush.
Piute Ground Squirrel *(Spermophilus mollis)*	S	Big sagebrush
Common Garter Snake (*Thamnophis sirtalis*)	S	Aquatic/riparian
Western Toad (*Bufo boreas*)	S, SC	Wetland/riparian, all upland habitats
Columbia Spotted Frog (*Rana lutieventris*)	C, S, SC	Wetland/riparian
Redband Trout (*Oncorhynchus mykiss gibbsi)*	S, SC	Aquatic

C = Candidate Species for listing as threatened or endangered, S = BLM Sensitive Species, SC = State of Idaho Species of Special Concern

Sage Grouse Habitat Assessment Worksheet - Breeding Habitat (5/23/01)

Date:	**Project or Allotment Name/#:**					
Pasture Name/#:			**Site #:**		**FO:**	
Legal Description: T. R. Section , 1/4, 1/4					**GPS File #:**	
Evaluator(s):			**Ecological Site:**			
Site Info. (circle one): Arid Site, Mesic Site			**UTM:**			
Landscape Site (circle one): Key Habitat , R1, R2, R3						
Cover Type (circle one): Sagebrush, Perennial Grassland (native, introduced), Annual Grassland with Sagebrush, Annual Grassland, Juniper Area						
Habitat Indicator	**Suitable Habitat**	✓	**Marginal Habitat**	✓	**Unsuitable Habitat**	✓
Average Sagebrush Canopy Cover	≥ 15% but ≤ 25%		10-<15% or >25%		<10%	
Average Sagebrush Height Mesic Site Arid Site	 15-30" 12-30"		 10-14" or > 30" 10-11" or >30"		 <10" <10"	
Sagebrush Growth Form	Spreading form, few, if any, dead branches for most plants		Mix of spreading and columnar growth forms present		Tall, columnar growth form with dead branches for most plants	
Average Grass and Forb Height	≥ 7"		5 - < 7"		< 5"	
Average Perennial Grass Canopy Cover Mesic Site Arid Site	 ≥ 15% ≥ 10%		 5 - <15% 5 - <10%		 <5% < 5%	
Average Forb Canopy Cover Mesic Site Arid Site	 ≥ 10% ≥ 5%		 5 - <10% 3 - <5%		 < 5% < 3%	
Preferred Forb Abundance and Diversity[1]	Forbs common with at least a few preferred species present		Forbs common but only 1 or 2 preferred species present		Forbs rare to sparsely present	
Overall Site Evaluation						
Rationale for Overall Rating and Comments: Comments on Restoration Potential:						

Sage Grouse Habitat Assessment Worksheet - Late Brood-rearing (5/23/01)

Date:			**Project or Allotment Name/#:**			
Pasture Name/#:			**Site #:**		**FO:**	
Legal Description: T. R. Section , 1/4, 1/4					**GPS File #:**	
Evaluator(s):			**Ecological Site:**		**UTM #**	
Landscape Site (circle one): Key Habitat , R1, R2, R3						
Site Description (circle one): riparian area/perennial stream, riparian area/intermittent stream, wet meadow, lakebed, upland sagebrush site						
Habitat Indicator	**Suitable Habitat**	✓	**Marginal Habitat**	✓	**Unsuitable Habitat**	✓
Riparian and Wet Meadow Communities:						
Riparian and wet meadow plant community	Mesic or wetland plant species dominate wet meadow or riparian area		Xeric plant species invading wet meadow or riparian area		Xeric plant species along water's edge or near center of wet meadow	
Riparian and wet meadow stability	No erosion evident; some bare ground may be evident but vegetative cover dominates the site		Minor erosion occurring and bare ground may be evident but vegetative cover dominates the site		Major erosion evident; large patches of bare ground	
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure		Succulent, green forbs are available though distribution is spotty or plant structure limits effective use		Succulent, green forbs are scarce or not available	
Proximity of sagebrush cover	Sagebrush cover is adjacent to brood-rearing area (<100 yards)		Sagebrush cover is in close proximity (> 100 yards but < 300 yards) of brood-rearing areas		Sagebrush cover is unavailable (> 300 yards)	
Overall Riparian/Wet Meadow Site Evaluation						
Upland Sagebrush Communities:						
Forb availability	Succulent, green forbs are readily available in terms of distribution and plant structure		Succulent, green forbs are available though distribution is spotty or plant structure limits effective use		Succulent, greeen forbs are scarce or not available despite favorable growing conditions	
Overall Upland Site Evaluation						
Comments:						

APPENDIX D: Riparian Assessments

Standard 2 Riparian and wetland inventories

The riparian and wetland inventories on the Owyhee Resource Area were conducted using the 1998 Owyhee and Bruneau Riparian Inventory Procedures. These specific instructions and procedures are available at the Owyhee Field Office of the Bureau of Land Management. The following table demonstrates the relationship of key specific elements of the inventory to the indicators for Idaho Standard 2.

Riparian/Wetland Inventory Indicator	Standard Indictor 1	Standard Indicator 2	Standard Indicator 3	Standard Indicator 4
Stream miles	x	x	x	x
Date of data collection	x	x	x	x
Diverse age class/structure of hydric vegetation (6)	x	x	x	
Diverse composition of hydric vegetation (7)	x	x		
Vegetation reflects maintenance of soil moisture (8)	x	x		
Plant community comprised of bank stabilizing species (9)	x	x		
Hydric vegetation exhibits high vigor (10)	x	x		
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	x	x		
Adequate large woody material (12)	x	x		
Point bars re-vegetating with hydric species (14)	x	x		
Noxious weeds are present				x
Overall functioning condition*	x	x	x	x
Stubble height (inches)	x			
Percent of streambanks accessible by livestock	x			

Standard 3 Stream channels and floodplains inventories

The riparian and wetland inventories on the Owyhee Resource Area were conducted under the 1998 Owyhee and Bruneau Riparian Inventory Procedures. These inventory procedures include information regarding stream channel and floodplain conditions. The specific instructions and procedures are available from the Owyhee Field Office of the Bureau of Land Management. The following table demonstrates the relationship of key specific elements of the inventory to the indicators for Idaho Standard 3.

Inventory Indicator	Standard Indicator 1	Standard Indicator 2	Standard Indicator 3	Standard indicator 4	Standard Indicator 5	Standard Indicator 6
Date of data collection	x	x	x	x	x	x
Stream miles	x	x	x	x	x	x
Floodplain inundated frequently (1)			x			
Beaver dams are active and stable (2)		x				
Sinuosity, w/d ratio, gradient in balance with landscape setting (3)		x	x			
Upland watershed not contributing to riparian degradation (5)	x					
Diverse age class/structure of hydric vegetation (6)	x					
Diverse composition of hydric vegetation (7)	x					
Plant community comprised of bank stabilizing species (9)	x					
Hydric vegetation exhibits high vigor (10)	x					
Adequate hydric vegetation cover to protect banks and dissipate energy (11)	x					
Adequate large woody material (12)	x					
Floodplain and channel characteristics dissipate energy (13)	x					
Point bars revegetating with hydric species (14)	x					
Lateral stream movement associated with natural sinuosity (15)		x			x	
System is vertically stable (16)	x				x	
No excessive erosion or deposition (17)			x			
Overall functioning condition*	x	x	x	x	x	x
Apparent trend	x	x	x	x	x	x
Percent of streambank accessible to livestock	x	x	x	x	x	x
Percent with pugging				x		
Noxious weeds present						x

APPENDIX E: Indicators of Rangeland Health

This table demonstrates the relationships of the upland Rangeland Health Evaluation Indicators and Attributes and how they relate to the Idaho Standards for Rangeland Health. .

Attribute			Indicators of Rangeland Health	Standard 1	Standard 4 Native	Standard 5 Seedings
S	H		1-Rills	Y		
S	H		2-Water Flow Pattern	Y		
S	H		3-Pedestals / Terracettes	Y		
S	H		4-Bare Ground	Y		
S	H		5-Gullies	Y		
S			6-Wind-scoured, blowouts/deposition	Y		
	H		7-Litter Movement	Y		
S	H	B	8-Soil Surface Resistance to Erosion	Y	Y	Y
S	H	B	9-Soil Surface Loss or Degradation	Y	Y	Y
	H		10-Plant Community Composition / Distribution Relative to infiltration and	Y		
S	H	B	11-Compaction Layer	Y	Y	Y
		B	12-Functional / Structural Groups		Y	Y[1]
		B	13-Plant Mortality / Decadence		Y	Y
	H	B	14-Litter Amount	Y	Y	Y
		B	15-Annual Production		Y	Y
		B	16-Invasive Plants		Y	Y
		B	17-Reproductive Capability of Perennial Plants		Y	Y

---[1]Functional/Structural groups are compared to seeding mixture and age of seeding in making this evaluation, not to the site potential of the native plant community that occupied the area before treatment.

---S= Soil/Site Stability; H= Hydrologic Function; B= Biotic Integrity

Allotment	Lone tree	Lone tree	Lone tree	Lone tree	Lone tree
Map Identifier	RH1B	RH1A	RH2B	RH2A	RH3B
Legal	07S03W35	07S03W26	07S03W28	07S03W28	07S03W32
Ecological site	Shallow Claypan 12-16	Loamy 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Loamy 13-16
1-Rills	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	n-s	n-s	m	s-m	n-s
3-Pedestals /Terracettes	n-s	s-m	s-m	s-m	n-s
4-Bare Ground	n-s	n-s	n-s	n-s	n-s
5-Gullies	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	s-m	s-m	s-m	s-m	n-s
9-Soil Surface Loss or Degradation	s-m	n-s	s-m	s-m	n-s
10-Plant Community comp/distrib relative to infiltration and runoff	s-m	s-m	s-m	m	s-m
11-Compaction Layer	n-s	n-s	n-s	n-s	n-s
12-Functional /Structural Groups	m	m	m	m	s-m
13-Plant Mortality /Decadence	s-m	s-m	s-m	s-m	n-s
14-Litter Amount	n-s	s-m	n-s	n-s	n-s
15-Annual Production	n-s	n-s	n-s	n-s	n-s
16-Invasive Plants	m-e	m-e	m-e	m-e	m-e
17-Reproductive Capability of Perennial Plants	n-s	n-s	n-s	n-s	n-s
Standard 1					
n-s	9	8	7	7	11
s-m	3	4	4	4	1
m	0	0	1	1	0
m-e	0	0	0	0	0
e	0	0	0	0	0
Standard 4,5					
n-s	4	4	4	4	7
s-m	3	3	3	3	1
m	1	1	1	1	0
m-e	1	1	1	1	1

e	0	0	0	0	0

Allotment	Lone tree	Lone tree	Lone tree	Lone tree	Lone tree
Pasture	RH3A	RH4B	RH4A	RH5A	RH6A
Legal	07S03W32	07S03W31	07S04W19	08S0335	08S0W26
Ecological site	Shallow Claypan 12-16	Loamy 13-16	Shallow Claypan 12-16	Loamy 13-16	Loamy 13-16
1-Rills	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	m	n-s	n-s	n-s	n-s
3-Pedestals /Terracettes	s-m	n-s	s-m	n-s	n-s
4-Bare Ground	s-m	n-s	n-s	n-s	n-s
5-Gullies	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	s-m	s-m	s-m	n-s	n-s
9-Soil Surface Loss or Degradation	s-m	s-m	s-m	n-s	n-s
10-Plant Community comp/distrib relative to infiltration and runoff	s-m	m	n-s	m	s-m
11-Compaction Layer	n-s	n-s	n-s	n-s	n-s
12-Functional /Structural Groups	s-m	s-m	s-m	s-m	s-m
13-Plant Mortality /Decadence	n-s	s-m	n-s	n-s	n-s
14-Litter Amount	n-s	n-s	n-s	n-s	n-s
15-Annual Production	n-s	n-s	n-s	s-m	n-s
16-Invasive Plants	m-e	m-e	m	e	e
17-Reproductive Capability of Perennial Plants	n-s	n-s	n-s	n-s	n-s
Standard 1					
n-s	6	9	9	11	11
s-m	5	2	3	0	1
m	1	1	0	1	0
m-e	0	0	0	0	0
e	0	0	0	0	0
Standard 4,5					
n-s	5	4	5	6	7
s-m	3	4	3	2	1
m	0	0	1	0	0
m-e	1	1	0	0	0

e	0	0	0	1	1
Allotment	Louisa Creek	Louisa Creek	Louisa Creek	Louisa Creek	Louisa Creek
Map Identifier	RH1A	RH1B	RH2A	RH2B	RH3B
Legal	07S02W21	07S02W20	07S02W28	07S02W34	08S02W07
Ecological site	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Shallow Claypan 12-16	Loamy 13-16
1-Rills	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	n-s	n-s	n-s	n-s	m
3-Pedestals /Terracettes	n-s	n-s	n-s	s-m	n-s
4-Bare Ground	n-s	n-s	n-s	n-s	n-s
5-Gullies	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	s-m	n-s	n-s	n-s	n-s
9-Soil Surface Loss or Degradation	n-s	n-s	n-s	n-s	s-m
10-Plant Community comp/distrib relative to infiltration and runoff	s-m	n-s	s-m	n-s	s-m
11-Compaction Layer	n-s	n-s	n-s	n-s	n-s
12-Functional /Structural Groups	s-m	n-s	s-m	s-m	n-s
13-Plant Mortality /Decadence	n-s	n-s	n-s	n-s	s-m
14-Litter Amount	n-s	n-s	n-s	n-s	s-m
15-Annual Production	n-s	n-s	n-s	n-s	n-s
16-Invasive Plants	m	m-e	m	m	s-m
17-Reproductive Capability of Perennial Plants	n-s	n-s	n-s	n-s	n-s
Standard 1					
n-s	10	12	11	11	8
s-m	2	0	1	1	3
m	0	0	0	0	1
m-e	0	0	0	0	0
e	0	0	0	0	0
Standard 4,5					
n-s	6	8	7	7	5
s-m	2	0	1	1	4
m	1	0	1	1	0

m-e	0	1	0	0	0
e	0	0	0	0	0

Allotment	Louisa Creek	Louisa Creek	Louisa Creek	Louisa Creek	Louisa Creek
Map Identifier	RH3C	RH3A	RH4A	RH4B	RH5A
Legal	08S02W08	08S02W06	08S02W21	08S02W28	08S02W28
Ecological site	Shallow Claypan 12-16	Very Shallow Stony Loam 10-14	Loamy 13-16	Very Shallow Stony Loam 10-14	Loamy 13-16
1-Rills	n-s	n-s	n-s	n-s	n-s
2-Water Flow Patterns	m	e	s-m	n-s	n-s
3-Pedestals /Terracettes	m	e	s-m	s-m	n-s
4-Bare Ground	n-s	n-s	n-s	n-s	n-s
5-Gullies	n-s	n-s	n-s	n-s	n-s
6-Wind-scoured blowouts /depositions	n-s	n-s	n-s	n-s	n-s
7-Litter Movement	n-s	n-s	n-s	n-s	n-s
8-Soil Surface Resistance to Erosion	n-s	n-s	n-s	n-s	n-s
9-Soil Surface Loss or Degradation	m	m	m	s-m	n-s
10-Plant Community comp/distrib relative to infiltration and runoff	m-e	s-m	s-m	m	m
11-Compaction Layer	n-s	n-s	n-s	n-s	n-s
12-Functional /Structural Groups	m	m	m	m	s-m
13-Plant Mortality /Decadence	m	n-s	n-s	n-s	n-s
14-Litter Amount	s-m	n-s	n-s	n-s	n-s
15-Annual Production	n-s	n-s	n-s	n-s	n-s
16-Invasive Plants	e	m	m	m	s-m
17-Reproductive Capability of Perennial Plants	n-s	n-s	n-s	n-s	n-s
Standard 1					
n-s	7	8	8	9	11
s-m	1	1	3	2	0
m	3	1	1	1	1
m-e	1	0	0	0	0
e	0	2	0	0	0
Standard 4,5					
n-s	4	6	6	6	7
s-m	1	0	0	1	2
m	3	3	3	2	0
m-e	0	0	0	0	0

e	1	0	0	0	0

APPENDIX F: Precipitation

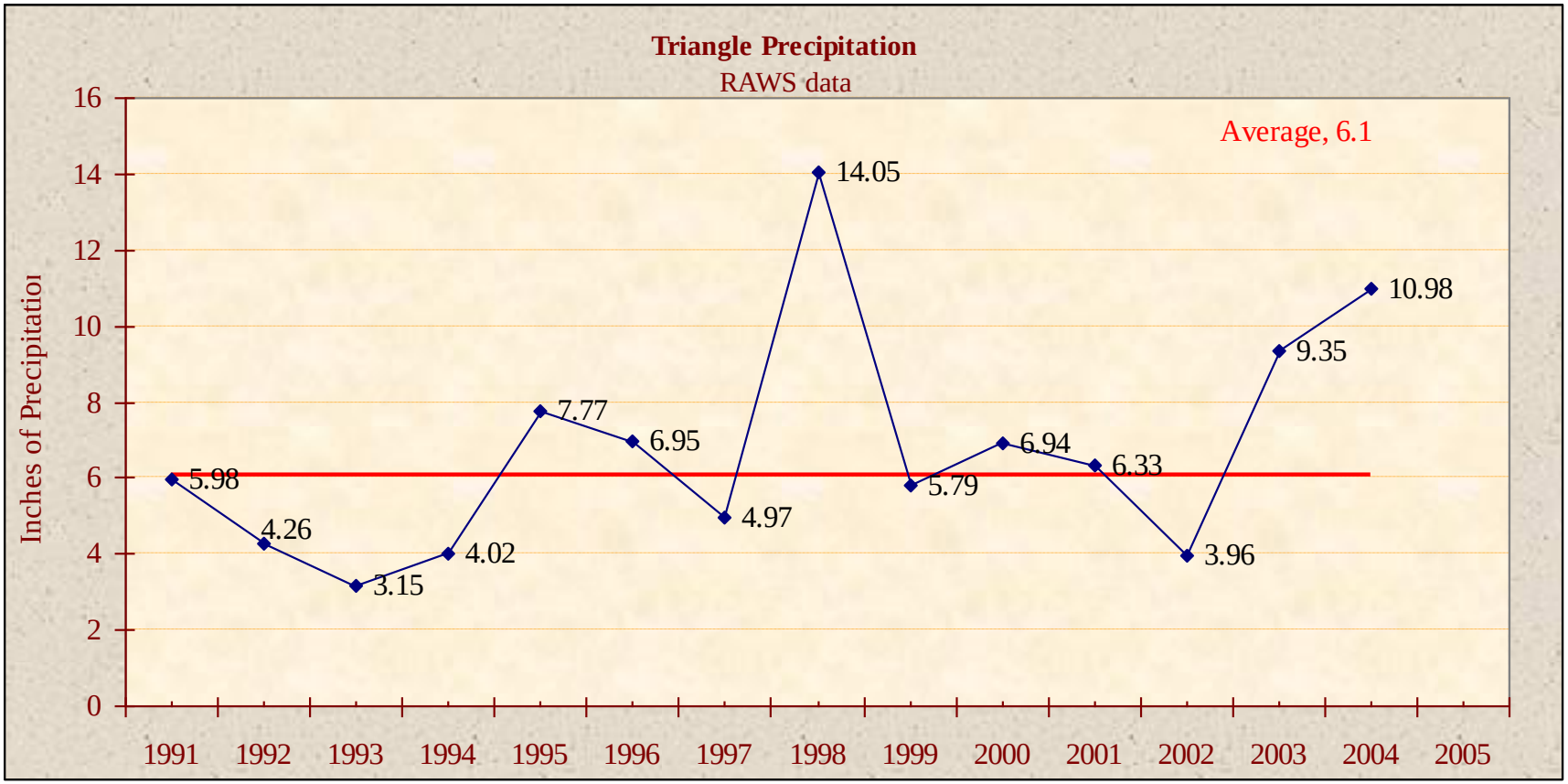


Figure F-1: Annual precipitation recorded at the Triangle, Idaho RAWS station (January 1 through December 31)

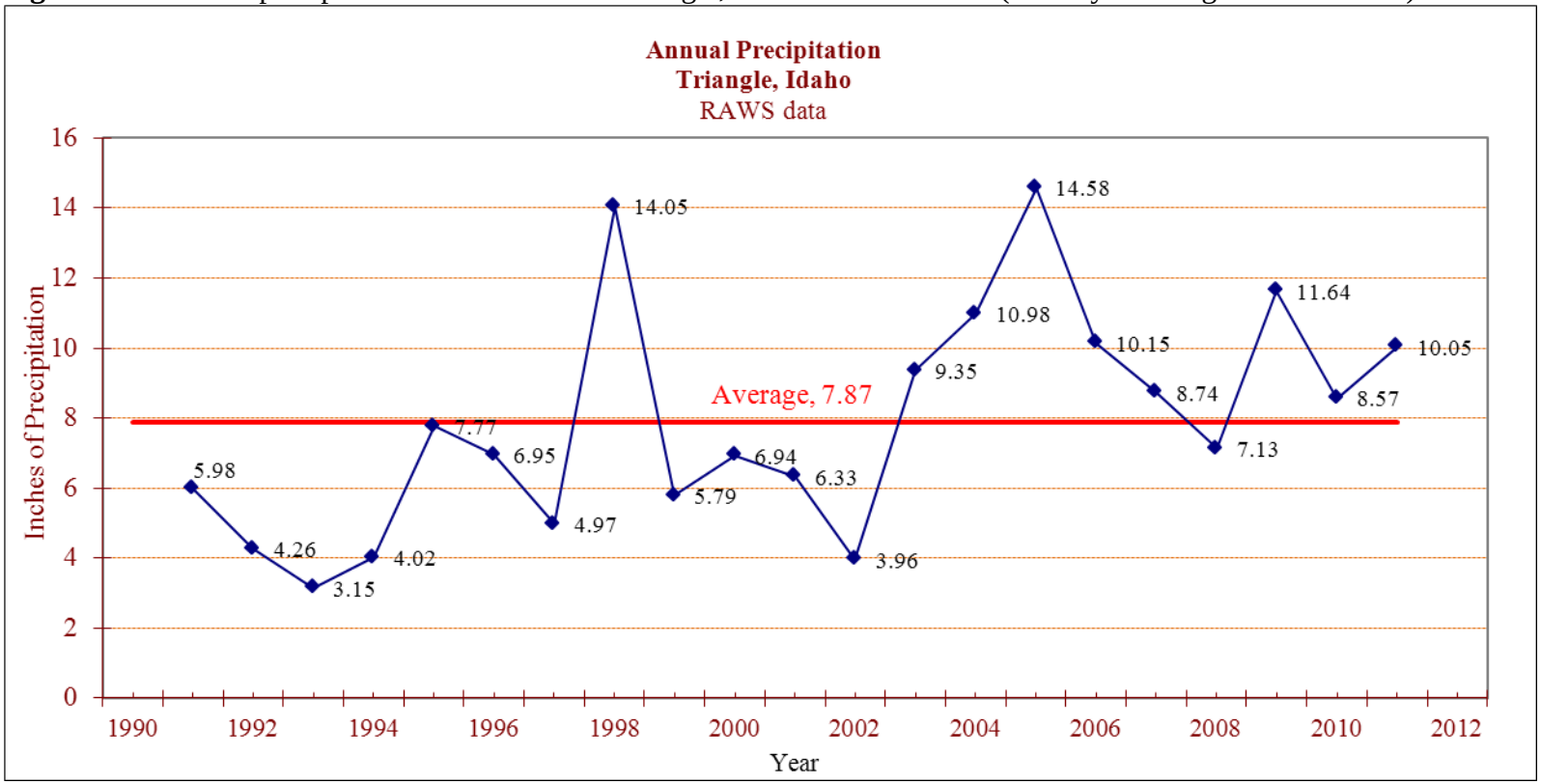
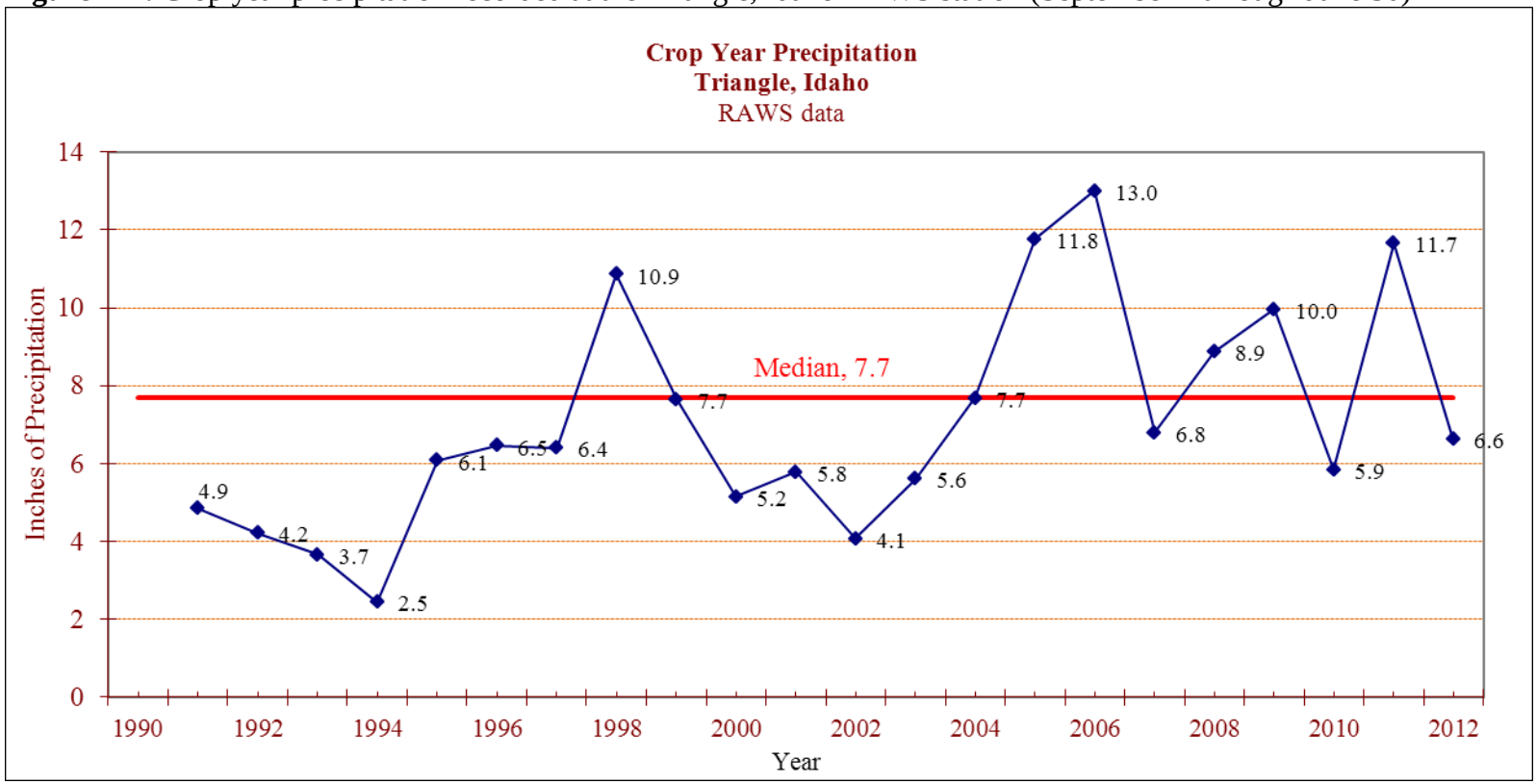


Figure F-2: Crop year precipitation recorded at the Triangle, Idaho RAWS station (September 1 through June 30)



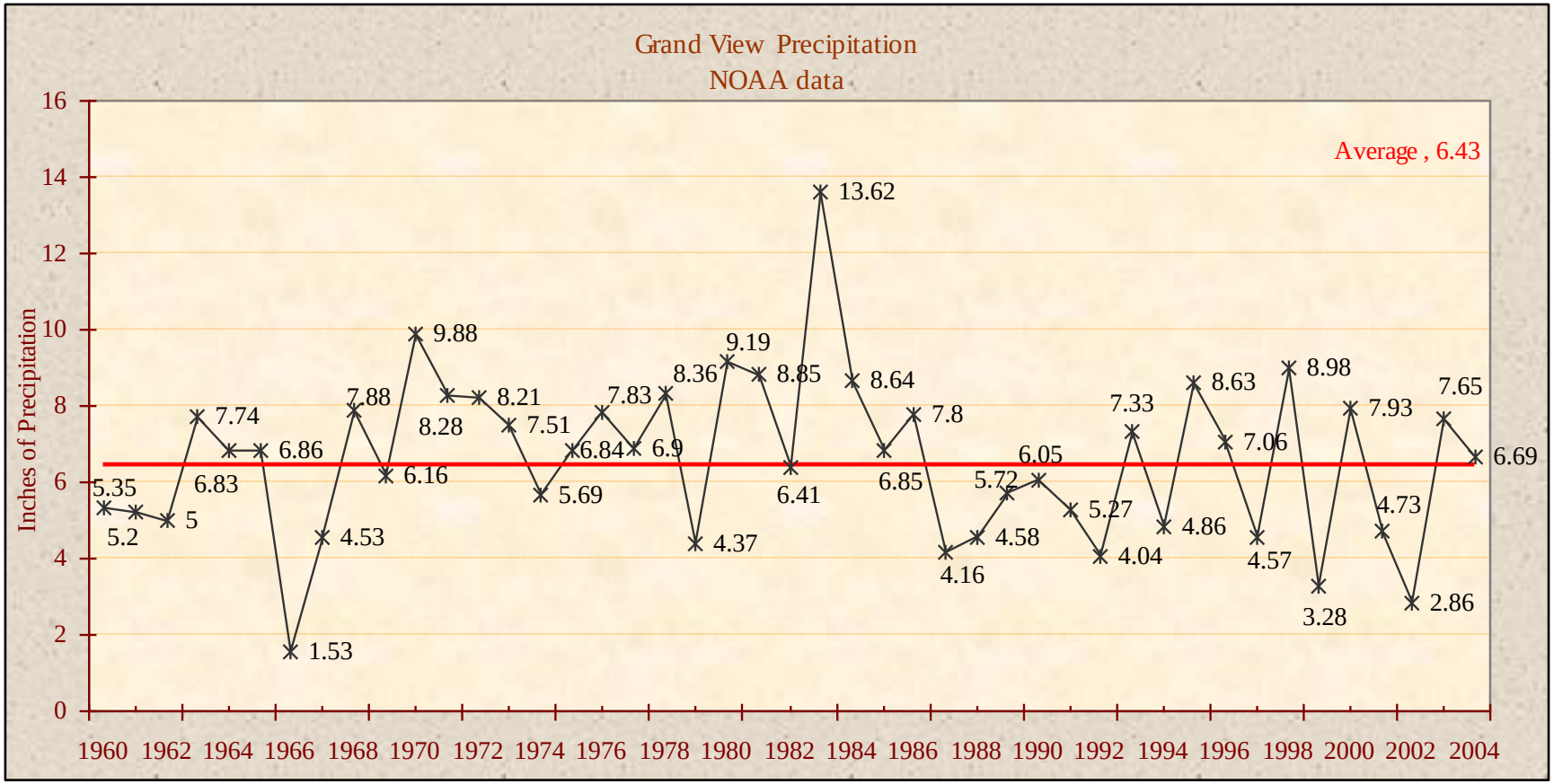

Grand View Precipitation
NOAA data
Average , 6.43
Inches of Precipitation
16
14
12
10
8
6
4
2
0
1960 1962 1964 1966 1968 1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004
5.35
5.2
5
6.83
7.74
6.86
1.53
4.53
7.88
6.16
9.88
8.28
8.21
7.51
5.69
6.84
7.83
6.9
8.36
4.37
9.19
8.85
6.41
13.62
8.64
6.85
7.8
4.16
4.58
5.72
6.05
5.27
4.04
7.33
4.86
8.63
7.06
4.57
8.98
3.28
7.93
4.73
2.86
7.65
6.69

Figure F-3: Annual precipitation recorded at the Grand View, Idaho NOAA station (January 1 through December 31)

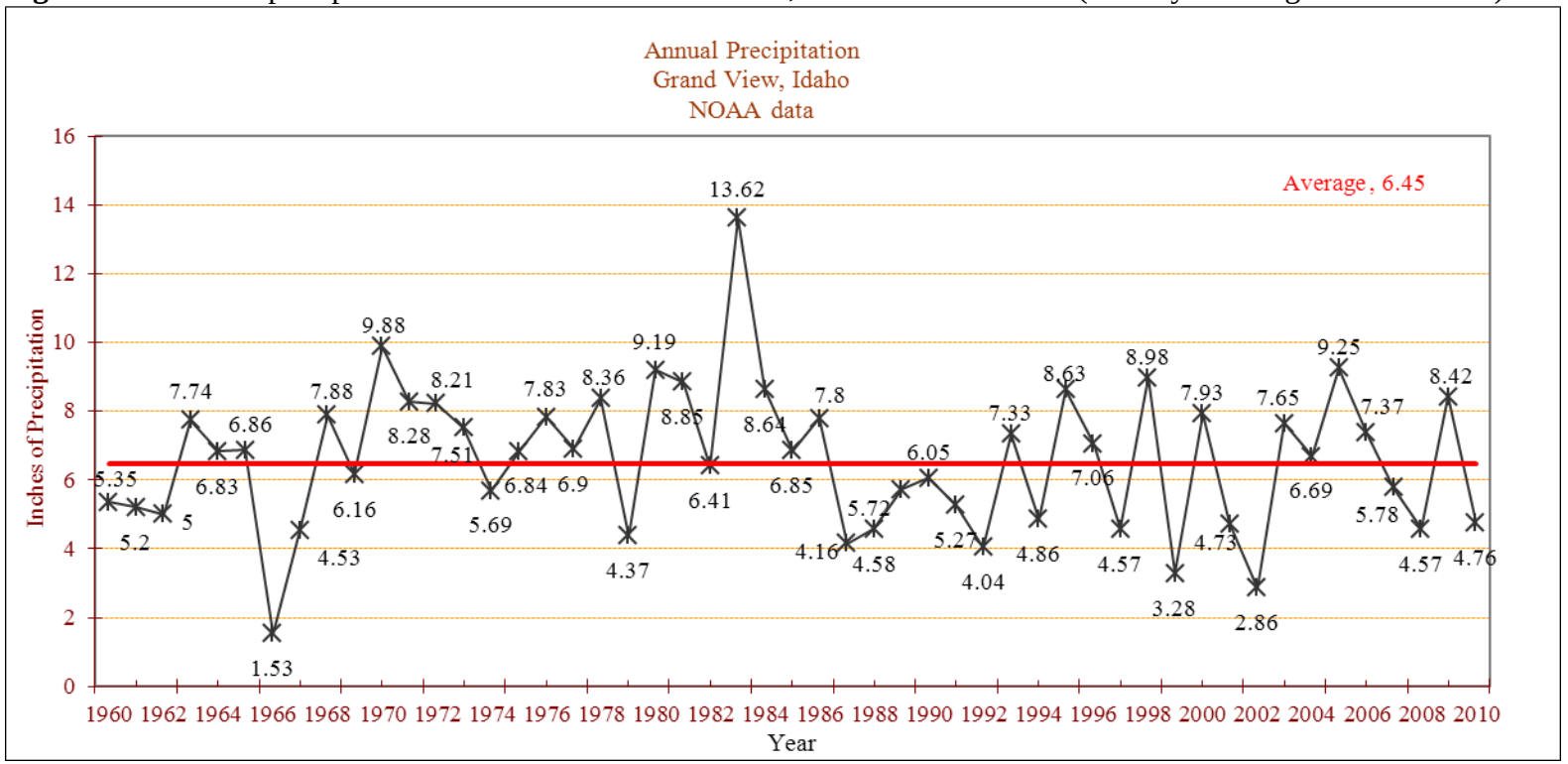
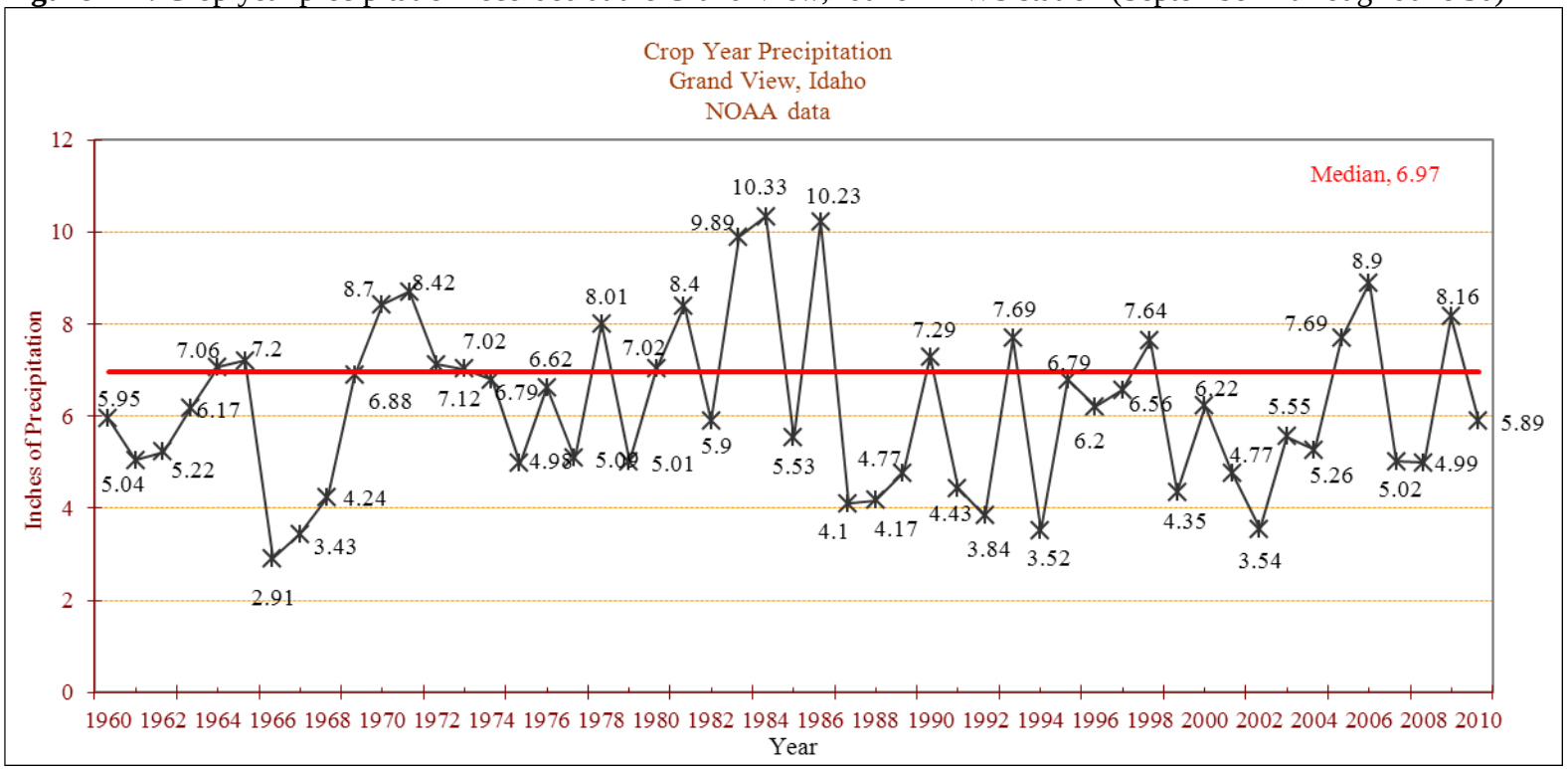
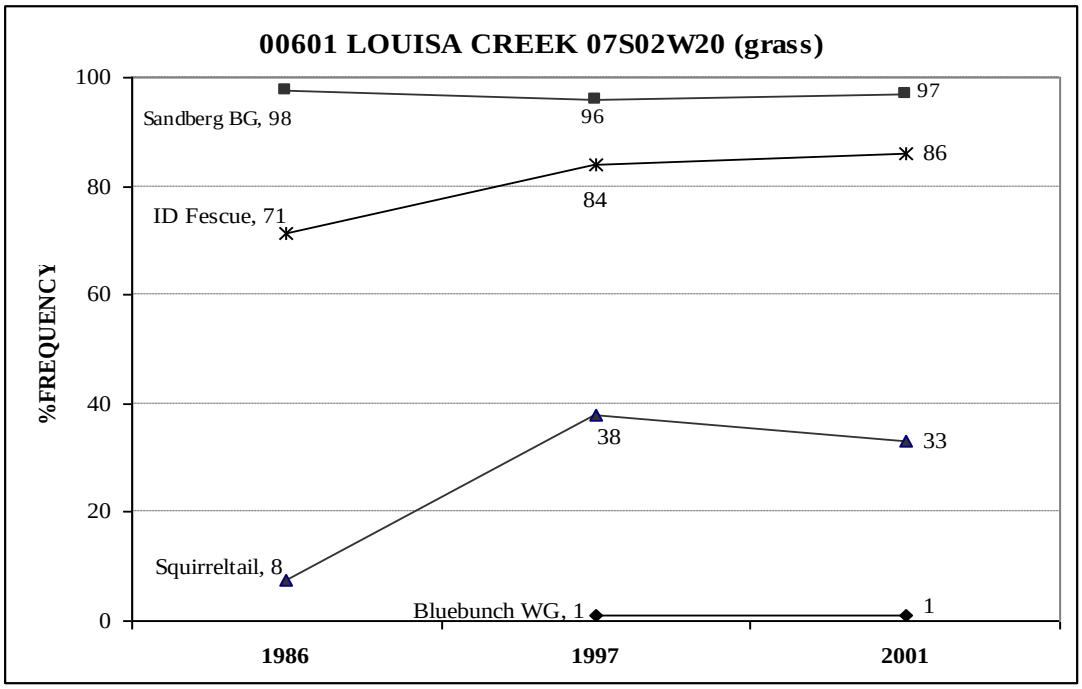


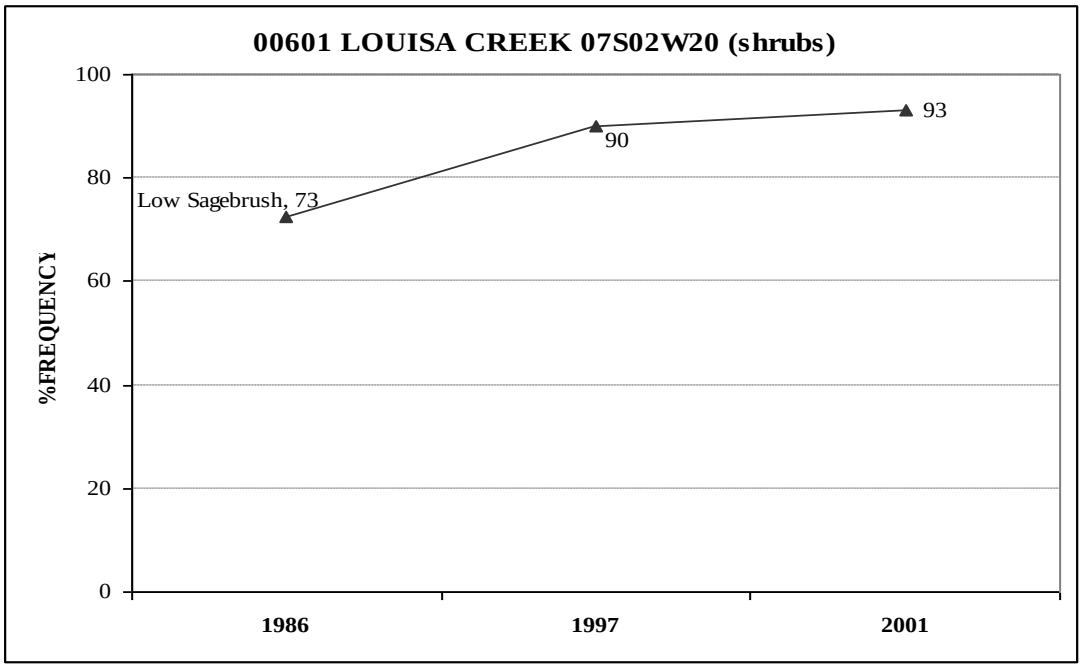
Figure F-4: Crop year precipitation recorded at the Grand View, Idaho RAWS station (September 1 through June 30)



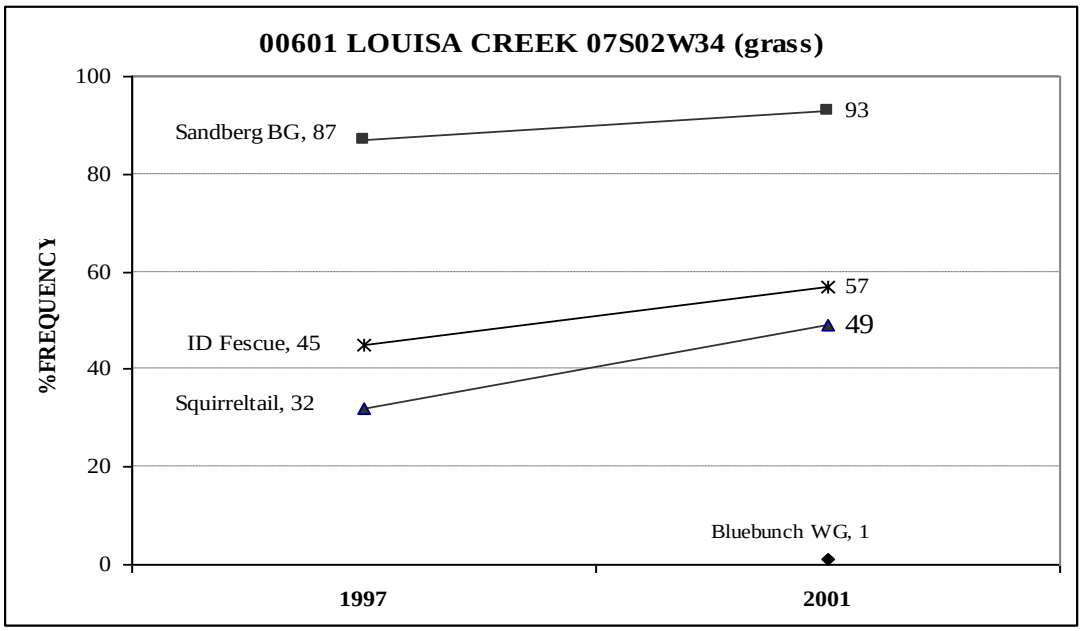
APPENDIX G: Nested Plot Frequency Data

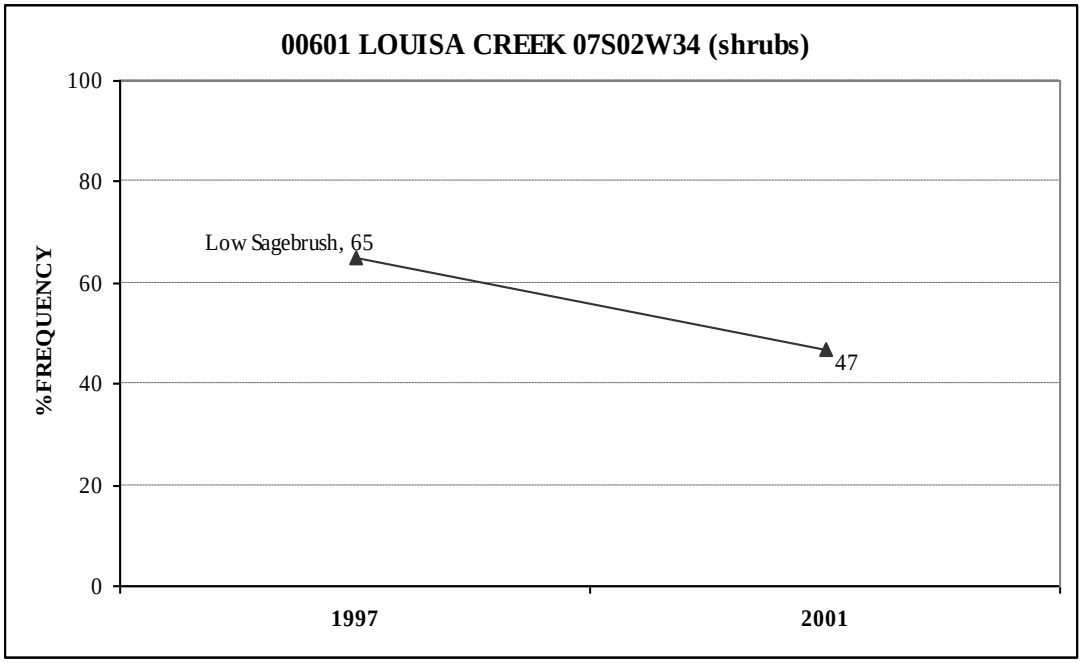
Louisa Creek Allotment NPFT Graphs
Pasture 1



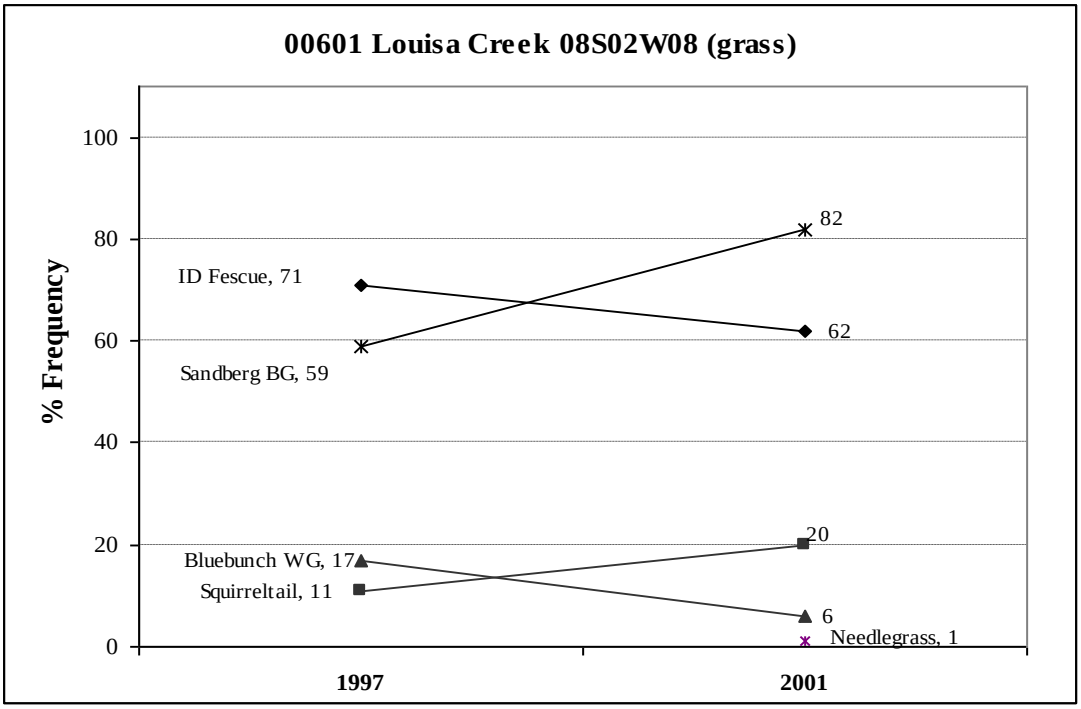


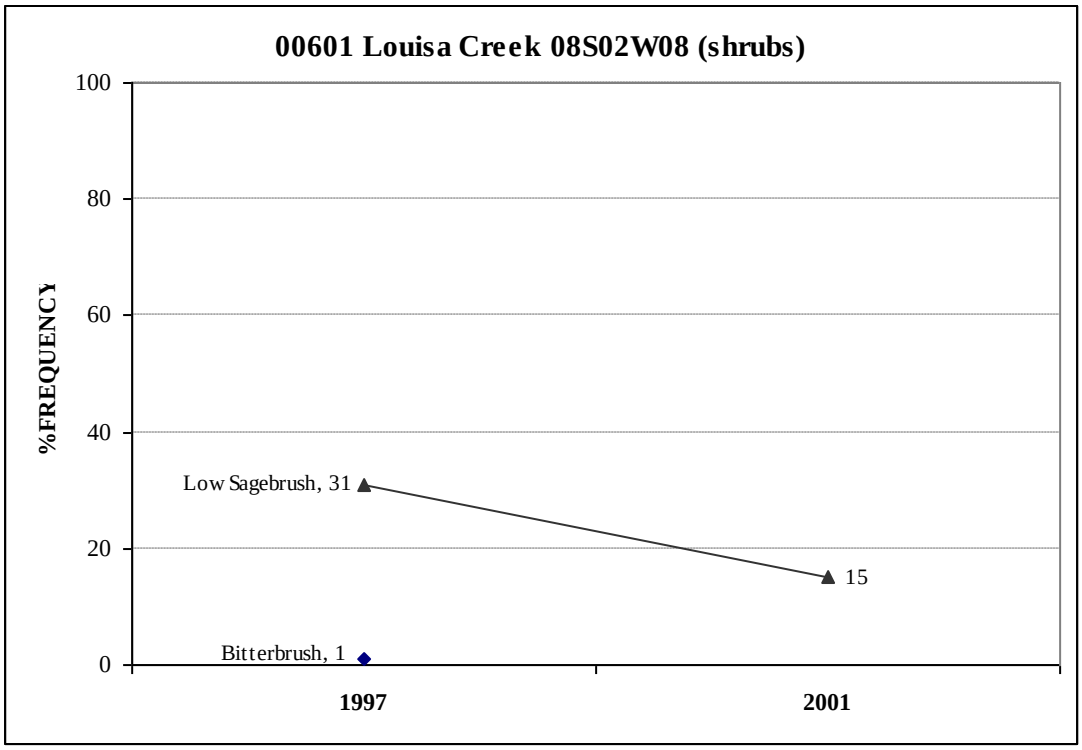
Pasture 2


00601 LOUISA CREEK 07S02W34 (grass)
%FREQUENCY
100
80
60
40
20
0
Sandberg BG, 87
93
ID Fescue, 45
57
Squirreltail, 32
49
Bluebunch WG, 1
1997
2001


00601 LOUISA CREEK 07S02W34 (shrubs)
%FREQUENCY
100
80
60
40
20
0
Low Sagebrush, 65
47
1997
2001

Pasture 3


00601 Louisa Creek 08S02W08 (grass)
% Frequency
100
80
60
40
20
0
82
ID Fescue, 71
62
Sandberg BG, 59
20
Bluebunch WG, 17
Squirreltail, 11
6
Needlegrass, 1
1997
2001


00601 Louisa Creek 08S02W08 (shrubs)
%FREQUENCY
100
80
60
40
20
0
Low Sagebrush, 31
15
Bitterbrush, 1
1997
2001

Appendix H: Maps

V. 2013 Determinations
A. Lone Tree Allotment

2013 Supplement to the Lone Tree Rangeland Health Standards and Guidelines Assessment

Lone Tree Allotment
2013 Evaluation Findings and Determination

Standard 1 (Watersheds)
Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
□ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
■ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management
□ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s).

Rationale for Evaluation Finding and Determination

Standard 1 is not met in pasture 1 (former pasture 2) and 3 due to juniper encroachment and historic livestock management; pastures 4, 5, and 6 are meeting but are at risk for a decline in soil stability and hydrologic function due to juniper. While all pastures have been physically impaired by past grazing impacts, soils are stabilizing based on developing biological crusts over historic erosion relics, and little to no indication of current mechanical impacts.

Soil stability and hydrologic function, and nutrient availability, however, are impaired where western juniper encroachment and dominance is not part of site potential. Because overall watershed conditions are closely tied to the health of the biotic community, the current imbalance of vegetation composition identified for upland vegetation is a concern.

The encroachment of western juniper in all pastures is negatively affecting soil stability due to reductions in infiltration capacity from displacement of sagebrush and deep-rooted perennial bunchgrasses. The subsequent runoff results in sheet erosion and rilling, with greatest disturbances and reductions in infiltration capacity observed in pastures 1 and 3; pastures 4, 5, and 6 currently display little to no departure for soil and hydrologic indicators but are considered to be at risk.

The decreased ecological function and impaired soils indicate that soil and hydrologic function are compromised in pastures 1 and 3. Juniper encroachment and historic livestock management are the primary contributing factors for not meeting Standard 1 and ORMP soil management objectives of improving unsatisfactory watershed health/conditions for the Lone Tree allotment.

Standard 2 (Riparian Areas and Wetlands)

Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _5_

Rationale for Evaluation Finding and Determination

Standard 2 is not being met in pastures 1-4 and 6 of the Lone Tree allotment. Five named streams traverse the pastures within the allotment. Approximately 8.3 miles have been assessed and 6.8 miles (82 percent) were rated FAR; however, 3.4 miles showed an upward trend. Issues identified included areas with inadequate soil moisture to support hydric species that stabilize stream banks, the presence of noxious weeds, and sheared and eroded stream banks.

Subsequent to the PFC assessments, two MMIM sites were established on Rose Creek in pasture 4 and on Wickiup Creek on pasture 6. The MMIM site on Rose Creek had a mean stubble height of 7.3 inches, stream banks alteration was 5 percent, and woody use was 5.4 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels. The MMIM site on Wickiup Creek had a mean stubble height was 6.4 inches, stream banks alteration was 13 percent, and woody use was 6.7 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels.

Additionally, five springs in pastures 1 and 2 have been assessed. Four of them were most recently FAR, and one was in PFC. All of the springs that were FAR had altered flow patterns caused by soils being sheared by livestock. Lone Tree Spring has been altered by the presence of a dam and a trough. However, most recently (2011), Lone Tree Spring was rated in PFC because the hydric vegetation was abundant, robust, and was regenerating.

Stubble height has been measured in all pastures and on all five named streams between 1997 and 2002, and heights range from 1 to 18 inches.

Current livestock grazing management practices are significant causal factors for not meeting Standard 2. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function everywhere, the recent grazing schedule has not allowed for rest years, and the spring developments were not designed to protect the ecological function of the riparian-wetland areas. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

Standard 3 (Stream Channel/Floodplain)

Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _7_

Rationale for Evaluation Finding and Determination

Five named streams traverse the pastures within the allotment. Approximately 8.3 miles have been assessed and 6.8 miles (82 percent) were rated FAR; however, 3.4 miles showed an upward trend. Issues identified include areas with inadequate soil moisture to support hydric species that stabilize stream banks, the presence of noxious weeds, over-wide channels, and sheared and erosion of stream banks.

Subsequent to the PFC assessments, two MMIM sites were established on Rose Creek in pasture 4 and on Wickiup Creek on pasture 6. The MMIM site on Rose Creek had a mean stubble height of 7.3 inches, stream banks alteration was 5 percent, and woody use was 5.4 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels. The MMIM site on Wickiup Creek had a mean stubble height was 6.4 inches, stream banks alteration was 13 percent, and woody use was 6.7 percent. The levels of use were within an appropriate range for maintenance of riparian-wetland areas and steam channels.

Stubble height has been measured in all pastures and on all five named streams between 1997 and 2002, and heights range from 1 to 18 inches.

Current livestock grazing management practices are significant causal factors for not meeting Standard 3. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function everywhere, the recent grazing schedule has not allowed for rest years, and the management has not allowed progress toward appropriate stream channel and stream bank morphology and function. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 3.

Standard 4 (Native Plant Communities)

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _4, 9, 12_

Rationale for Evaluation Finding and Determination

Standard 4 is not met in all pastures of the Lone Tree allotment due to juniper encroachment into sagebrush steppe vegetation communities. Western juniper was recorded as an invasive species in all pastures of the Lone Tree allotment, with a moderate or greater departure from reference site conditions in all rangeland health assessments within the allotment. The dominance of juniper is greater than identified at reference site conditions as an inclusion in small locations with shallow soils. Indicators of biotic integrity, other than the indicator for invasive species where juniper dominance was noted, were documented in the 2006 evaluation as within the range of anticipated deviation. Competition with juniper has reduced the composition of shrubs and herbaceous species below reference site conditions, although these understory species retain vigor. Juniper dominance is a result of altered fire regimes and to a lesser extent, historic livestock grazing practices that reduced fuels.

At the same time, a number of information sources indicate that the Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory

vegetation health/condition on all areas has not been met with current livestock management practices. Those sources include the vegetation ecological site inventory data, as updated in the 1999 Owyhee Resource Management Plan, that indicate the need for improvement from 35 percent early-seral condition and 65 percent mid-seral condition; native perennial bunchgrass trend data between 2005 and 2011 at the one permanent trend plot in pasture 1 that identifies static trend; and notes at many rangeland health assessment sites in pastures 1, 3, and 4 identifying vegetation composition dominated by shallow-rooted grasses, inconsistent with reference site conditions.

Annual grazing use of pastures 1 and 2 (pasture 2 is combined with pasture 1; Josephine Creek and its associated canyon do not provide a barrier to livestock movement) during the active growing season for upland native perennial herbaceous species (May-June) and frequent grazing use in pasture 3 late in this same active growing season lead to a conclusion that current livestock management practices are also contributing to the failure to meet Standard 4. In addition, annual grazing during the active growing season for upland perennial species is not consistent with the Owyhee Resource Management Plan vegetation management actions and allocations which identify that grazing practices will be implemented that improve or maintain native rangeland species to attain composition, density, foliar cover, and vigor appropriate to site potential. The Owyhee Resource Management Plan vegetation management objective is not met in pastures 1-2, 3, and 4. While data support a finding that current livestock management practices do not impair meeting the Owyhee Resource Management Plan management objective in pastures 5 and 6 for improvement/maintenance of native herbaceous and shrub vegetation communities, juniper encroachment in these same pastures leads to an overall conclusion that the Owyhee Resource Management Plan vegetation management objective is not met.

Standard 5 (Seedings)

Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Standard

- Standard does not apply

Non-native seedings are not the dominant vegetation type on Federal lands within this allotment. Therefore, Standard 5 does not apply.

Standard 6 (Exotic Plant Communities, Other than Seedings)

Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Standard

- Standard does not apply

Exotic plant communities are not the dominant vegetation type on Federal lands within this allotment. Therefore, Standard 6 does not apply.

Standard 7 (Water Quality)

Surface and ground water on public lands comply with the Idaho Water Quality Standards.

Standard

□ Standard does not apply
■ Meeting the Standard
□ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management
□ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s).

Rationale for Evaluation Finding and Determination

Idaho Department of Environmental Quality (IDEQ) designates basins, sub-basins, and assessment units in order to manage the States waterways. The 2010 Integrated Report (303(d)/305(b)) uses assessment units (AUs) within the sub-basin. Assessment units are groups of similar streams within a sub-basin that have similar land use practices, ownership, or land management. Assessment units are assessed for pollutants and assigned beneficial uses with associated Water Quality Standards. The Beneficial Use Reconnaissance Program (BURP) is a field assessment of stream segments (all IDEQ data and standards mentioned here are available on the IDEQ web site http://www.deq.idaho.gov).

Current IDEQ information identifies that there are approximately 3.5 miles of stream that are fully supporting the assigned beneficial uses, and 11.3 miles of stream that have not been assessed within six AUs on BLM lands within the Lone Tree allotment. Thus, the Standard is being met in pasture 1, and although there are streams present in pastures 2-5, Standard 7 is not applicable.

Standard 8 (Threatened and Endangered Plants and Animals)

Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors

□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines
□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 8, 12

Rationale for Evaluation Finding and Determination

Botany
Standard 8 for special status plant species is met in this allotment. One population of the special status plant species doublet is known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in the Lone Tree allotment.

Wildlife
Overall, Standard 8 for wildlife is not met in the Lone Tree allotment. Upland and riparian habitats are not providing adequate conditions for many shrub-obligate and riparian dependent species. Perennial herbaceous vegetation heights and forb diversity and abundance are not providing suitable nesting and concealment cover or early brood-rearing forage for sage-grouse. Advanced stages of juniper encroachment into formerly usable sage-grouse habitats is also substantially limiting habitat suitability for sage-grouse. Conversion to juniper woodlands comes at the expense of shrub steppe habitats, which are the proper plant community reference state and condition for the ecological sites that predominate within the allotment. Juniper encroachment is a primary causal factor for the Lone Tree allotment not meeting Standard 8 for wildlife in upland habitats.

The majority of riparian habitats (lotic and lentic systems) within the allotment are not in proper functioning condition (see Standard 2). Riparian habitats are not providing adequate breeding and foraging conditions for many dependent wildlife species due to a lack of structural diversity, inadequate soil moisture for hydric vegetation, overwide channels, unstable banks, and noxious weeds. These factors result in less than suitable habitat for a diversity of species including migratory birds, redband trout, and Columbia spotted frogs. Current livestock grazing management practices are the causal factor for not meeting Standard 8 wildlife in riparian habitats.

Because the condition, abundance, structural stage, and distribution of plant communities required for diverse and desired wildlife populations are not maintained or enhanced and because special status species' habitats are inadequate to increase or maintain populations so as to preclude an impetus for listing (for sagebrush and shrub obligates and dependent species in particular), these major ecological site alterations from their reference states discussed above do not conform with ORMP objectives WDLF-1 and SPSS-1.

Determination

I have determined that Standards 1, 2, 3, 4, and 8 of the applicable Standards for Rangeland Health are not being met in the Lone Tree allotment, while Standard 7 is met. Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 2, 3, 4, and 8, whereas current livestock management practices are not significant factors toward not meeting Standard 1. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 4, 5, 7, 8, 9 and 12 for several Standards.

Field Manager **Date**
Owyhee Field Office

B. Louisa Creek Allotment

2013 Supplement to the Louisa Creek Rangeland Health Standards and Guidelines Assessment

Evaluation Findings and Determination

Standard 1 (Watersheds)

Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
□ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
■ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management
□ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s).

Rationale for Evaluation Finding and Determination

Historic grazing practices and western juniper encroachment are significant causal factors for not meeting upland watershed Standard 1 in pasture 3 of the Louisa Creek allotment; pastures 1, 2, 4, and 5 are meeting Standard 1.

Where western juniper encroachment dominates and where desirable shrubs, perennial grasses, and forbs are of low abundance, soil and hydrologic function are negatively affected. Because overall watershed conditions are closely tied to the health of the biotic community, the current imbalance of vegetation composition identified in pastures 3, 4, and 5 for upland vegetation is a concern where juniper encroachment and dominance is not a portion of site potential.

Most indicators of soil and hydrologic integrity were documented in the 2006 evaluation as within the range of anticipated deviation with the exception of pasture 3. Soil surface loss and degradation has occurred as evidenced by extreme pedestals and water flow patterns. They are attributed to historic grazing since soils are stabilizing based on developing biological crusts over historic erosion relics and plentiful rock content. However, more recent ground cover data in the pasture shows a downward trend that correlates to a reduction in sagebrush and deep-rooted perennial bunchgrasses that can also be linked to the encroachment of western juniper.

A similar relationship of impaired hydrologic function due to a reduction in a functional range

community can be observed in pastures 4 and 5. Though physical soil degradation and stability is currently not a concern due to extensive armoring of surface soils by coarse fragments and rocks, the absence of shrubs and the pasture-wide departure from reference conditions caused by western juniper alter infiltration and soil moisture patterns that do not allow for the proper capture, storage, and management of moisture.

Taken together, soil and hydrologic function are compromised and decrease the ability for proper nutrient cycling, hydrologic cycling, and energy flow. Historic livestock management and the invasion of western juniper are the causal factors in not meeting Standard 1 in pasture 3, while ORMP objectives to improve unsatisfactory and maintain satisfactory watershed health/condition are not met within pastures 3, 4, and 5 of the Louisa Creek allotment due to the pasture-wide encroachment of juniper.

Standard 2 (Riparian Areas and Wetlands)

Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _5_

Rationale for Evaluation Finding and Determination

Standard 2 is not being met in the Louisa Creek allotment. Segments of Cow Valley, Josephine, Louisa, North Fork Castle, and Rock Creeks traverse BLM lands within the allotment. Approximately 5.6 miles have been assessed and 4.4 miles (79 percent) were rated FAR. Issues identified included areas with inadequate soil moisture to support hydric species that stabilize stream banks, the presence of noxious weeds, areas of lateral and vertical instability, and unstable beaver dams.

Additionally, two springs in pastures 1 and 2 have been assessed. Toy Seep was non-functioning (NF), and Antelope Spring was in proper functioning condition (PFC). Although the area inside the exclosure at Antelope Spring contains robust vegetation and was in PFC, the area outside the exclosure has been heavily impacted. In a field visit in 2013, there was excessive tramping and

erosion of riparian soils was occurring. The concern identified for Toy Seep was that the development pipes all of the source water into cattle troughs.

Stubble height has been measured in pastures 1-3 between 1996 and 2001, and heights range from 2 to 17 inches, with an average of 4.9 inches.

Current livestock grazing management practices are significant causal factors for not meeting Standard 2. Residual vegetation has not been sufficient to maintain or improve riparian-wetland function, the recent grazing schedule has not allowed for rest or deferment years, and the spring development was not designed to protect the ecological function of the riparian-wetland areas. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 2.

Standard 3 (Stream Channel/Floodplain)

Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _7_

Rationale for Evaluation Finding and Determination

Standard 3 is not being met in the Louisa Creek allotment. Three named streams traverse the pastures within the allotment. Approximately 5.6 miles have been assessed and 4.4 miles (79 percent) were rated FAR. Issues identified included areas with inadequate soil moisture to support hydric species that stabilize stream banks, the presence of noxious weeds, areas of lateral and vertical instability, and unstable beaver dams.

Stubble height has been measured in pastures 1-3 between 1996 and 2001, and heights range from 2 to 17 inches, with an average of 4.9 inches.

Current livestock grazing management practices are significant causal factors for not meeting Standard 3. Residual vegetation has not been sufficient to maintain or improve riparian-wetland

function, the recent grazing schedule has not allowed for rest or deferment years, and the stream channel and bank function has been compromised. Therefore, current livestock grazing management practices do not conform with the Idaho Guidelines for Livestock Grazing Management applicable to Standard 3.

Standard 4 (Native Plant Communities)

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Standard

□ Standard does not apply
□ Meeting the Standard
□ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
■ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management
□ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s).

Rationale for Evaluation Finding and Determination

Standard 4 is not met in pastures 3, 4, and 5 of the Louisa Creek allotment due to juniper encroachment into sagebrush steppe vegetation communities. Western juniper was recorded as an invasive species in all pastures of the Louisa Creek allotment, and was present in the greatest amounts in pastures 3 and 4. Juniper occurrence in pasture 5 was noted as a slight-to-moderate departure from reference site conditions, although its presence on site in rangeland health assessment photos and NAIP imagery suggests greater dominance. The dominance of juniper is greater throughout the allotment than identified at reference site conditions, as an inclusion in small locations with shallow soils. Juniper dominance is a result of altered fire regimes and, to a lesser extent, historic livestock grazing practices that reduced fuels. Indicators of biotic integrity, other than the indicator for invasive species where juniper dominance was noted, were documented in the 2006 evaluation as within the range of anticipated deviation. Grazing treatment of pastures 3, 4, and 5 after the active growing season does not lead to a conclusion that current livestock management practices are contributing to the failure to meet Standard 4.

At the same time, a number of information sources indicate that the Owyhee Resource Management Plan management objective to improve unsatisfactory and maintain satisfactory vegetation health/condition on all areas has been met within pastures 1 and 2, while not met in pasture 3, 4, and 5. Information sources include the vegetation ecological site inventory data, as updated in the 1999 Owyhee Resource Management Plan, that support the need for improvement from 65 percent early-seral condition and 35 percent mid-seral condition; native perennial

bunchgrass trend data between 2007 and 2011 at permanent trend plots that identify static and downward trends; and notes at many rangeland health assessment sites identifying vegetation composition dominated by shallow-rooted grasses, inconsistent with reference site conditions.

Standard 5 (Seedings)

Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Standard

■ Standard does not apply

Non-native seedings are not the dominant vegetation type on Federal lands within this allotment. Therefore, Standard 5 does not apply.

Standard 6 (Exotic Plant Communities, Other than Seedings)

Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Standard

■ Standard does not apply

Exotic plant communities are not the dominant vegetation type on Federal lands within this allotment. Therefore, Standard 6 does not apply.

Standard 7 (Water Quality)

Surface and ground water on public lands comply with the Idaho Water Quality Standards.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). _10_

Rationale for Evaluation Finding and Determination

Current IDEQ information identifies that there are approximately 13.7 miles of stream on BLM lands within the Louisa allotment that are not supporting the beneficial uses. There are portions of six AUs within the allotment, and five of them are not supporting the beneficial uses, while one has not been assessed. The five AUs all have approved TMDLs for temperature; however, AU # ID17050108SW013_02 and ID17050108SW014_02 both have streams that continue to be 303(d) listed for flow alteration, and AU # ID17050108SW014_02 also remains listed for sediment.

Additionally, BLM has monitored stream temperature in North Fork Castle, Rock, and Louisa Creeks. All of the streams exceed the temperature criteria set by the state for cold water aquatic life (19.3, 21.4, and 22.4 respectively). The criteria, as defined by the State, set a Maximum Daily Average Temperature (MDAT) of 19° C.

Based on the streams removal from the 303(d) list of impaired waters, Standard 7 is being met in pastures 1 of the Louisa Creek allotment. However, implementation plans associated with the TMDLs are in development, and actions on the ground will not take place immediately. Standard 7 is not currently being met in pastures 2, but this is due to flow alterations, so the pasture is therefore in conformance with the Guidelines. Standard 7 is not being met in pastures 3, 4, and 5, since there are streams on the 303(d) list due to flow alterations and sediment; the allotment is not in conformance with the Guidelines for Livestock Grazing Management because the sediment can be attributed to livestock use.

Standard 8 (Threatened and Endangered Plants and Animals)

Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Standard

□ Standard does not apply
□ Meeting the Standard
□ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
■ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

■ Conforms with Guidelines for Livestock Grazing Management
□ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s).

Rationale for Evaluation Finding and Determination

Botany

Standard 8 for special status plant species (SSPS) is met in this allotment. No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment for this reason this standard is not applicable.

Wildlife

Overall, Standard 8 for wildlife is not met in the Louisa Creek allotment. Upland and riparian habitats are not providing adequate conditions for many shrub-obligate and riparian dependent species. Although sagebrush and perennial herbaceous vegetation understory components (bunchgrass heights, forb diversity and abundance) are providing suitable breeding, upland summer, and winter habitat conditions in portions of pastures 1 and 2, juniper encroachment into formerly usable sage-grouse habitats in the remaining portions of these pastures is limiting habitat suitability for sage-grouse overall. Standard 8 for wildlife is not met in pastures 3, 4, and 5 due to the dense juniper woodlands that have replaced former shrub steppe habitats. Conversion to juniper woodlands comes at the expense of shrub steppe habitats which are the proper plant community reference state and condition for the ecological sites that predominate within the allotment. Juniper encroachment is a primary causal factor for the Louisa Creek allotment not meeting Standard 8 for wildlife in upland habitats.

The majority of riparian habitats (lotic and lentic systems) within the allotment are not in proper functioning condition (see Standard 2). The majority of riparian habitats are not providing adequate breeding and foraging conditions for many dependent wildlife species due to a lack of structural diversity, inadequate soil moisture for hydric vegetation that stabilize stream banks, areas of lateral and vertical instability, unstable beaver dams, and noxious weeds. These factors result in less-than-suitable habitat for a diversity of species including migratory birds, redband trout, and Columbia spotted frogs. Current livestock grazing management practices are the causal factor for not meeting Standard 8 wildlife in riparian habitats.

Because the condition, abundance, structural stage, and distribution of plant communities required for diverse and desired wildlife populations are not maintained or enhanced and because special status species' habitats are inadequate to increase or maintain populations so as to preclude an impetus for listing (for sagebrush and shrub obligates and dependent species in particular), these major ecological site alterations from their reference states discussed above do not conform with ORMP objectives WDLF-1 and SPSS-1.

Determination

I have determined that Standards 1, 2, 3, 4, 7, and 8 of the applicable Standards for Rangeland Health are being met in the Louisa Creek allotment. Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 2, 3, and 7, whereas current livestock management practices are not significant factors toward not meeting Standards 1, 4, and 8. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 5, 7, and 10 for several Standards.

Field Manager **Date**

Owyhee Field Office

Rationale for Evaluation Finding and Determination

Current IDEQ information identifies that there are approximately 13.7 miles of stream on BLM lands within the Louisa allotment that are not supporting the beneficial uses. There are portions of six AUs within the allotment, and five of them are not supporting the beneficial uses, while one has not been assessed. The five AUs all have approved TMDLs for temperature; however, AU # ID17050108SW013_02 and ID17050108SW014_02 both have streams that continue to be 303(d) listed for flow alteration, and AU # ID17050108SW014_02 also remains listed for sediment.

Additionally, BLM has monitored stream temperature in North Fork Castle, Rock, and Louisa Creeks. All of the streams exceed the temperature criteria set by the state for cold water aquatic life (19.3, 21.4, and 22.4 respectively). The criteria, as defined by the State, set a Maximum Daily Average Temperature (MDAT) of 19° C.

Based on the streams removal from the 303(d) list of impaired waters, Standard 7 is being met in pastures 1 of the Louisa Creek allotment. However, implementation plans associated with the TMDLs are in development, and actions on the ground will not take place immediately. Standard 7 is not currently being met in pastures 2, but this is due to flow alterations, so the pasture is therefore in conformance with the Guidelines. Standard 7 is not being met in pastures 3, 4, and 5, since there are streams on the 303(d) list due to flow alterations and sediment; the allotment is not in conformance with the Guidelines for Livestock Grazing Management because the sediment can be attributed to livestock use.

Standard 8 (Threatened and Endangered Plants and Animals)

Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Standard

□ Standard does not apply
□ Meeting the Standard
■ Not meeting the Standard, Current livestock grazing management practices are significant factors
□ Not Meeting the Standard; Making significant progress toward meeting
□ Not Meeting the Standard; Current livestock grazing management practices are not significant factors

Guidelines

□ Conforms with Guidelines for Livestock Grazing Management
■ Does not conform with Guidelines for Livestock Grazing Management; Guideline No(s). 5, 7

Rationale for Evaluation Finding and Determination

Botany

Standard 8 for special status plant species (SSPS) is met in this allotment. No populations of special status plant species are known to occur in this allotment. There is insufficient information to determine site-specific impacts of livestock grazing on any special status plants that may occur in this allotment. Records show no reported special status plants in this allotment for this reason this standard is not applicable.

Wildlife

Overall, Standard 8 for wildlife is not met in the Louisa Creek allotment. Upland and riparian habitats are not providing adequate conditions for many shrub-obligate and riparian dependent species. Although sagebrush and perennial herbaceous vegetation understory components (bunchgrass heights, forb diversity and abundance) are providing suitable breeding, upland summer, and winter habitat conditions in portions of pastures 1 and 2, juniper encroachment into formerly usable sage-grouse habitats in the remaining portions of these pastures is limiting habitat suitability for sage-grouse overall. Standard 8 for wildlife is not met in pastures 3, 4, and 5 due to the dense juniper woodlands that have replaced former shrub steppe habitats. Conversion to juniper woodlands comes at the expense of shrub steppe habitats which are the proper plant community reference state and condition for the ecological sites that predominate within the allotment. Juniper encroachment is a primary causal factor for the Louisa Creek allotment not meeting Standard 8 for wildlife in upland habitats.

The majority of riparian habitats (lotic and lentic systems) within the allotment are not in proper functioning condition (see Standard 2). The majority of riparian habitats are not providing adequate breeding and foraging conditions for many dependent wildlife species due to a lack of structural diversity, inadequate soil moisture for hydric vegetation that stabilize stream banks, areas of lateral and vertical instability, unstable beaver dams, and noxious weeds. These factors result in less-than-suitable habitat for a diversity of species including migratory birds, redband trout, and Columbia spotted frogs. Current livestock grazing management practices are the causal factor for not meeting Standard 8 wildlife in riparian habitats.

Because the condition, abundance, structural stage, and distribution of plant communities required for diverse and desired wildlife populations are not maintained or enhanced and because special status species' habitats are inadequate to increase or maintain populations so as to preclude an impetus for listing (for sagebrush and shrub obligates and dependent species in particular), these major ecological site alterations from their reference states discussed above do not conform with ORMP objectives WDLF-1 and SPSS-1.

Determination

I have determined that Standards 1, 2, 3, 4, 7, and 8 of the applicable Standards for Rangeland Health are not being met in the Louisa Creek allotment. Standards 5 and 6 are not applicable to this allotment. Current livestock grazing management practices are significant factors in not meeting Standards 2, 3, 7, and 8, whereas current livestock management practices are not significant factors toward not meeting Standards 1, and 4. Livestock management practices do not conform with the applicable Livestock Grazing Management Guidelines 5, 7, and 10 for several Standards.

Field Manager **Date**
Owyhee Field Office